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Sediment Data

Manitoba

Données sur les sédiments

1987

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WATER RESOURCES BRANCH
WATER SURVEY OF CANADA
OTTAWA, CANADA, 1989

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DIVISION DES RELEVÉS HYDROLOGIQUES DU CANADA
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PREFACE

This publication was prepared by personnel of the Sediment Survey Section, Water Survey of Canada Division, under the direction of the Director, Water Resources Branch, Department of the Environment, Ottawa.

The basic data were collected and compiled under the supervision of the Regional Chief of the Water Resources Branch at Winnipeg, Manitoba.

The co-operation received from provincial agencies and from other organizations is gratefully acknowledged.

PRÉFACE

Le groupe d'étude des sédiments de la Division des relevés hydrologiques du Canada, sous l'autorité du directeur des Ressources en eau du ministère de l'Environnement, à Ottawa, a préparé la présente publication.

Le chef régional de la Direction des ressources en eau, à Winnipeg (Manitoba), a supervisé la collecte et la compilation des données de base.

Nous remercions vivement les organismes provinciaux, ou autres, pour leur collaboration.

TABLE OF CONTENTS

	PAGE
Preface	iii
Introduction	iv
Scope of Publication	v
History and Objectives of Sediment Surveys in Canada	v
Publication of Sediment Data	v
Collection and Processing of Basic Data	vii
Equipment and Instrumentation	vii
Hydrometric Surveys	vii
Sediment Sampling Program	vii
Total Sediment Load	ix
Sediment Survey Laboratories	ix
Accuracy and Reliability of Field Data and Computed Results	x
Method of Tabulation of Sediment Data	xi
Definition of Terms	xiv
Definition of Symbols	xvi
Microfiche	xvii
Equivalents of Measure	xviii
Co-operation and Acknowledgments	xix
Revisions	xix
Sediment Data Stations in Alphabetical Order	1
Station Number Index	67
Alphabetical Index	69

INTRODUCTION

The Water Resources Branch of the Department of the Environment herein presents for the 1987 calendar year the annual suspended sediment data and a historical data summary for the sediment survey investigations conducted in Manitoba by the Water Survey of Canada.

Data on the character and quantity of fluvial sediments provided by sediment survey investigations are intended for use in studies of water quality, environmental impacts, river processes and behaviour, and engineering design.

General introductory information on the sediment survey is included in this publication. Similar information for the associated hydrometric survey is given in the regular publications containing surface water data.

Details on individual stations and related records, as well as recent data that have not yet been published, may be obtained upon application to:

Water Resources Branch,
Department of the Environment,
521 Federal Building,
269 Main Street,
Winnipeg, Manitoba.
R3C 1B2
(204 983-2435)

or to the Water Resources Branch, Department of the Environment, Ottawa, Ontario, K1A 0H3 (819 997-2098).

TABLE DES MATIÈRES

	PAGE
Préface	iii
Introduction	iv
Portée de la publication	v
Historique et objectifs des études des sédiments au Canada	v
Publication des données sur les sédiments	v
Collecte et traitement des données de base	vii
Matériel	vii
Relevés hydrométriques	vii
Échantillonnage des sédiments des cours d'eau	vii
Débit solide total	ix
Laboratoires d'analyse	ix
Exactitude des données et des résultats	x
Présentation des tableaux de données sur les sédiments	xi
Définition des termes	xiv
Définition des symboles	xvi
Microfiche	xvii
Équivalences des unités de mesure	xviii
Coopération et remerciements	xix
Révisions	xix
Stations de relevé des sédiments par ordre alphabétique	1
Index numérique des stations	67
Index alphabétique	69

INTRODUCTION

Dans la présente publication de la Direction des ressources en eau du ministère de l'Environnement, on trouvera les données annuelles sur les sédiments en suspension pour 1987 et le sommaire des données chronologiques sur les sédiments, à la suite des études effectuées dans les cours d'eau du Manitoba par la Division des relevés hydrologiques du Canada.

Les données recueillies sur la nature et l'importance de la charge solide dans les cours d'eau doivent servir aux études portant sur la qualité des eaux, les incidences environnementales, les processus fluviaux, le comportement des cours d'eau et la conception de projets.

La presente publication contient des renseignements généraux préliminaires sur les études des sédiments. Des renseignements semblables sur les études hydrométriques connexes sont contenus dans les publications régulières présentant des données sur les eaux de surface.

On peut obtenir des renseignements supplémentaires sur les stations et les relevés, ainsi que des données récentes non encore publiées, en s'adressant au:

Direction des ressources en eau
Ministère de l'Environnement
521, Édifice fédéral
269, rue Main
Winnipeg (Manitoba)
R3C 1B2
(204 983-2435)

ou au Direction des ressources en eau, ministère de l'Environnement, Ottawa (Ontario), K1A 0H3 (819 997-2098).

SCOPE OF PUBLICATION

Descriptive information about sediment stations is given. This refers to the Location, Latitude and Longitude, Drainage Area and whether the flow is Natural Flow or Regulated Flow (the year that regulation began is given, if known), Type of Gauge and the Total Suspended Sediment Load in Tonnes for the Period of Record is also included. International Gauging Stations are identified and the names of co-operating agencies who supply data are given; unusual conditions at the sediment station that could affect the data results are explained under "Remarks".

This publication contains data on streamflow, instantaneous suspended sediment concentration; daily mean suspended sediment concentration; daily suspended sediment loads; dissolved solids concentration; load summary; particle-size distribution of suspended sediment in percent sand, silt and clay; bed load and bed material; water temperature when samples were collected; type of sampler and the single sampling vertical location.

A historical sediment data summary includes such information as Sampled Concentration Maximum and Minimum; Suspended Sediment Load Maximum Daily and the Total for Period. The Period of Record and the Type of Operation for each year of data are also given. A Summary for the Months of record gives the Period of Record Mean, the Mean for Period of Record and the Standard Error of Mean as a percent.

HISTORY AND OBJECTIVES OF SEDIMENT SURVEYS IN CANADA

In Canada, investigations of sediment transported by streams were first undertaken by individual organizations or agencies in 1948, to meet the needs of federal and provincial agencies for assessment of particular projects. Although the investigations were extended to meet expanding needs after 1948, it was not until 1961 that a systematic survey was undertaken by the Water Resources Branch.

The sediment survey program has the following objectives:

(1) Collection and provision of data related to sediment transport in Canadian rivers for applications in water resource engineering, water quality and environmental studies.

(2) Provision of information and advice related to sediment transport.

(3) Assessment, improvement and standardization of equipment and techniques used in Canada's sediment survey program.

PUBLICATION OF SEDIMENT DATA

Sediment data have been published in a variety of formats since the beginning of the Sediment Survey Program.

PORTÉE DE LA PUBLICATION

Des données descriptives sont présentées sur les stations d'étude des sédiments. Elles concernent leur emplacement, leurs latitude et longitude, leur bassin versant, la nature de débit (naturel ou régularisé, avec indication, le cas échéant, de l'année où la régularisation a commencé, si elle est connue), le type d'instrument de mesure employé et le débit total des sédiments en suspension (en tonnes) pour la période de relevé. Les stations internationales de jaugeage sont indiquées, ainsi que le nom des organismes qui fournissent les données. Des explications concernant des conditions exceptionnelles qui ont pu influer sur les résultats sont présentées dans la partie «Remarques».

Cette publication renferme des données sur le débit des cours d'eau, les concentrations instantanées de sédiments en suspension, les concentrations journalières moyennes de sédiments en suspension, les débits journaliers de sédiments en suspension, les concentrations de matières dissoutes, les débits solides totaux (résumés), la granulométrie des sédiments en suspension exprimée en pourcentage de sable, de limon et d'argile, le charriage et les matériaux du lit, la température de l'eau au moment de l'échantillonnage, le type d'échantillonneur employé et l'emplacement des verticales de prélèvement d'échantillons uniques.

Un résumé des données historiques sur les sédiments est inclus. On y trouve divers renseignements comme les concentrations maximale et minimale mesurées, le débit journalier maximal des sédiments en suspension et le total pour la période. La période de relevé et le type d'exploitation des stations sont indiqués pour chaque année. Dans un résumé pour les mois de relevé, on donne la moyenne pour chaque période et pour l'ensemble des périodes de relevé ainsi que l'erreur-type de la moyenne, en pourcentage.

HISTORIQUE ET OBJECTIFS DES ÉTUDES DES SÉDIMENTS AU CANADA

Au Canada, les études dans ce domaine ont débuté en 1948 en réponse aux besoins exprimés par certains organismes fédéraux et provinciaux pour l'évaluation de projets donnés et étaient le fait d'organismes privés. Bien que les études se soient poursuivies après 1948 pour satisfaire aux besoins accrus, ce n'est qu'en 1961 que la Direction des ressources en eau les a entreprises de façon systématique.

Les buts de ces études sont de:

(1) réunir et produire des données sur les transports solides dans les cours d'eau canadiens, données dont on peut avoir besoin pour des études concernant l'environnement, la qualité des eaux et la conception de projets portant sur les ressources en eau.

(2) produire des informations concernant les transports solides.

(3) évaluer, améliorer et uniformiser le matériel et les techniques employés dans le programme d'étude des sédiments au Canada.

PUBLICATION DES DONNÉES SUR LES SÉDIMENTS

Depuis le début du programme d'étude des sédiments, la présentation des données a varié.

During the years 1948 to 1960, some sediment data were collected for several Prairie rivers to meet the needs of particular projects. The first Water Resources Paper series containing sediment data incorporated a selection of these data and also data for part of the year ending September 30, 1961, at stations established for the continuing program. The second issue was a biennial publication covering only the continuing program for the 1962 and 1963 water years. All subsequent editions titled *Sediment Data Canadian Rivers* have been published annually. The sediment data since 1978 have been presented entirely in the International System of Units (SI).

Commencing with 1984, the *Sediment Data* were published in a new format wherein Canada was divided into eight regions. The provinces each represent a separate region except for New Brunswick, Newfoundland, Nova Scotia and Prince Edward Island, which together form the Atlantic Provinces region, and the Yukon and Northwest Territories which make up another. The publications are identified by the province or territories covered and the year in which the data were collected. These data are published annually on a calendar-year basis and the stations are listed alphabetically.

A new edition, *Miscellaneous Sediment Data 1966 to 1983*, was published. It contains a tabulation of locations in Canada where miscellaneous data were collected but not previously published by the Water Survey of Canada. The following data are included in this one time publication: date and time of sample collection; instantaneous discharge or daily mean discharge; sampling vertical; instantaneous concentration; dissolved solids for some samples; type of sampler used; particle size distribution of suspended sediment in percent sand, silt and clay for some depth integrated samples and/or measurements, and some point integrated measurements; particle size distribution of bed load; particle size distribution of bed material; and the water temperature at time of sampling for some samples is also given where available.

The first edition of a *Sediment Data Reference Index* was published for data to 1972. It contains a tabulation of locations in Canada where sediment data were collected by the Water Survey of Canada. The index has been subdivided alphabetically by province or territory, with sediment survey stations also listed alphabetically. Commencing with the 1978 publication, data are presented in the International System of Units (SI) and will continue to be published biennially. The latest edition supersedes all previous editions because it contains any corrections or additions since the last publication.

The first edition of a new publication series titled *Historical Sediment Data Summary for Canadian Rivers* was produced for data to 1974. This publication contains a summary of historical monthly and annual mean suspended sediment load, and annual extremes of daily suspended sediment concentration and loads and total annual suspended load. Commencing with the 1978 publication, data are presented entirely in the International System of Units (SI). This publication has been discontinued, as much of the information is now included in the new annual *Sediment Data* publication.

De 1948 à 1960, on a recueilli des données pour plusieurs cours d'eau des Prairies en prévision de la réalisation de certains projets. La première publication contenant des données sur les sédiments a paru dans la série intitulée *Water Resources Paper*; elle présentait un choix de ces données ainsi que des données recueillies en 1961 avant le 30 septembre à des stations établies pour la réalisation du programme permanent. La deuxième publication a porté sur les données recueillies dans le cadre du programme au cours des années hydrologiques 1962 et 1963. Par la suite, les données ont été publiées annuellement sous le titre *Données sur les sédiments - rivières canadiennes*. Depuis 1978, les données sont exprimées en unités du Système international (SI).

En 1984, la présentation des *Données sur les sédiments* a été modifiée. Le Canada a été divisé en huit régions, une région pour chaque province, sauf le Nouveau-Brunswick, Terre-Neuve, la Nouvelle-Écosse et l'Île-du-Prince-Édouard qui, ensemble, forment la région des provinces de l'Atlantique, et les Territoires du Yukon et du Nord-Ouest, qui forment une autre région. Les publications sont nommées selon la région couverte et l'année des données (année civile). Ces publications sont annuelles. Les stations y sont présentées par ordre alphabétique.

Une édition récente intitulée *Données diverses sur les sédiments, 1966 à 1983* vient de paraître. On y présente sous forme de tableau les emplacements où des données diverses non encore publiées ont été recueillies au Canada par la Division des relevés hydrologiques. Cette première édition comprend des données telles que : la date et la durée de l'échantillonnage; le débit instantané ou débit journalier moyen; la verticale d'échantillonnage; les concentrations instantanées; les concentrations de matières solides en solution pour certains échantillons; le type d'échantillonneur employé; la granulométrie des sédiments en suspension en pourcentage de sable, de limon et d'argile, dans le cas de mesures avec intégration selon la profondeur ou d'échantillons intégrés sur toute la profondeur, et dans le cas de mesures par la méthode ponctuelle; la granulométrie du charriage; la granulométrie des matériaux du lit; la température de l'eau lors du prélèvement d'échantillons, lorsque celle-ci est connue.

Un *Index de référence des données sur les sédiments* est publié. La première édition portait sur les données disponibles jusqu'en 1972. Les emplacements où des données sur les sédiments ont été recueillies au Canada par la Division des relevés hydrologiques y sont présentés sous forme de tableau. L'*Index* est subdivisé selon l'ordre alphabétique par province ou territoire, et les stations de mesure des sédiments sont classées par ordre alphabétique. À partir de 1978, les données sont exprimées en unités du Système international (SI). L'*Index* est publié tous les deux ans; l'édition la plus récente annule toutes les éditions antérieures, car elle renferme toutes les corrections et mises à jour effectuées depuis la dernière parution.

Une autre série de publications a porté le titre *Sommaire chronologique des données sur les sédiments de rivières canadiennes*. La première édition renfermait les données disponibles jusqu'en 1974. Cette série présentait un résumé donnant les moyennes mensuelles et annuelles historiques du débit des sédiments en suspension, les valeurs annuelles extrêmes de la concentration journalière et du débit journalier des sédiments en suspension et le débit annuel total des sédiments en suspension. À partir de 1978, les données ont été présentées en unités du Système international (SI). Cette série a été abandonnée, car une bonne partie de l'information est maintenant contenue dans la nouvelle publication annuelle intitulée *Données sur les sédiments*.

COLLECTION AND PROCESSING OF BASIC DATA

1. *Equipment and Instrumentation*

The sediment survey program of the Water Resources Branch is conducted in cross sections on rivers selected specifically for the sediment survey or for the hydrometric survey. Certain cross sections are located at traffic bridges, while others are equipped with cableways, or automatic pump samplers.

The following sediment samplers have been used in the sediment survey program:

(a) Depth-integrating suspended sediment wading-type hand sampler, USDH-48, used on small streams or during winter periods.

(b) Depth-integrating suspended sediment sampler, USDH-59, used as a handline suspension for small and medium size streams.

(c) Depth-integrating suspended sediment samplers, USD-49, and USD-74, used on a reel suspension for medium and large streams whose depths are less than five metres.

(d) Point-integrating suspended sediment samplers, USP-61, USP-61-A1, USP-63, and USP-72, used for point-integrating sampling, or depth-integrating sampling if the depth is over five metres, or in a cross section with velocities up to two metres per second.

(e) Automatic pump sampler is an automatic pumping system permitting unattended collecting and bottling of individual water samples pumped from a fixed point in a stream. This sampler is normally installed at isolated locations where otherwise no data would be available during ice break-up or peak periods.

(f) Bed material sampler, USBM-54, used on large or deep streams or on those streams with hard-packed streambeds.

(g) Bed material sampler, USBMH-60, used on some large or deep streams or on those streams with soft-packed streambeds.

(h) Bed material sampler, USBMH-53, used on some small or shallow streams.

(i) Lane bed material sampler, a drag-type sampler used on small streams or those with soft streambeds.

2. *Hydrometric Surveys*

The hydrometric survey includes the standard procedures for observations of water levels, streamflow measurements, water surface slope determinations if required, and observations of water temperature. The streamflow measurements are made in conjunction with the sediment load measurements and conform to the accepted standards of the regular hydrometric survey.

3. *Sediment Sampling Program*

The following is a summary of the elements associated with the Sediment Sampling Program:

(a) Periodic measurement of suspended sediment load by the

COLLECTE ET TRAITEMENT DES DONNÉES DE BASE

1. *Matériel*

L'étude des sédiments réalisée par la Direction des ressources en eau porte sur des sections transversales de cours d'eau choisis spécialement à cette fin ou pour les relevés hydrométriques. Certaines sections sont situées sous un pont, d'autres sont accessibles par téléphérique, ou sont étudiées à l'aide d'un échantillonneur sous pression.

On a utilisé les échantillonneurs suivants:

(a) L'échantillonneur intégrateur selon la profondeur, type simple, USDH-48, employé dans les cours d'eau peu profonds ou en hiver;

(b) L'échantillonneur intégrateur selon la profondeur USDH-59, utilisé comme une ligne dans les cours d'eau petits et moyens;

(c) Les échantillonneurs intégrateurs selon la profondeur USD-49 et USD-74 fixés au bout d'une corde s'enroulant autour d'un moulinet et employés dans les cours d'eau gros ou moyens dont la profondeur est inférieure à cinq mètres;

(d) Les échantillonneurs intégrateurs USP-61, USP-61-A1, USP-63 et USP-72, employés ponctuellement ou sur toute la verticale, et utilisés lorsque la profondeur est supérieure à cinq mètres ou dans les sections transversales qui connaissent un débit qui atteint 2 m/s.

(e) Un échantillonneur automatique permettant le prélèvement en bouteilles, sans surveillance, d'échantillons uniques d'eau obtenus à l'aide d'une pompe en un point précis d'un cours d'eau; il est ordinairement installé dans un endroit isolé où aucune donnée ne pourrait être obtenue autrement au cours de la débâcle ou des périodes de débit de pointe;

(f) L'échantillonneur USBM-54 employé pour le prélèvement d'échantillons des matériaux du lit dans les cours d'eau importants ou profonds ou dans les cours d'eau dont le fond est dur;

(g) L'échantillonneur USBMH-60 employé pour le prélèvement d'échantillons des matériaux du lit dans certains cours d'eau importants ou profonds, ou dans les cours d'eau dont le fond est meuble;

(h) L'échantillonneur USBMH-53 employé pour le prélèvement d'échantillons des matériaux du lit dans certains cours d'eau petits ou peu profonds;

(i) La drague employée pour le prélèvement d'échantillons des matériaux du lit dans de petits cours d'eau ou dans des cours d'eau dont le fond est meuble.

2. *Relevés hydrométriques*

Le relevé hydrométrique comprend, entre autres, l'observation de la hauteur des eaux, la mesure du débit de l'eau, la détermination de la pente de la ligne d'eau, si nécessaire, ainsi que l'observation de la température de l'eau. Les mesures du débit de l'eau et du débit des sédiments se font conjointement, suivant les méthodes acceptées.

3. *Échantillonnage des sédiments des cours d'eau*

L'échantillonnage comporte, en gros, les éléments suivants:

(a) La mesure périodique du débit des sédiments en suspension par la méthode d'intégration sur toute la profondeur

depth-integrating method for determining the average suspended sediment concentration in the cross section.

(b) Single suspended sediment samples at a selected vertical for determining the sediment concentration for the days when suspended sediment load measurements are not taken.

(c) Limited measurement of suspended sediment load by the point-integrating method for checking depth-integrated measurements and for determining particle-size distribution in the cross section.

(d) Sampling of bed material for determining particle-size distribution.

(e) Periodic measurement of bed load.

The following is a brief explanation of the elements listed above:

(a) *Suspended Sediment Load by Depth-Integrating Method*: Measurements are made by the depth-integrating method to determine the suspended sediment load in the entire cross section of a stream, the average suspended sediment concentration in the cross section, and the size distribution of the sediment particles. It is known that the concentration of suspended sediment tends to increase from the water surface to the streambed and could vary from streambank to streambank.

When making suspended sediment equal-discharge-increment (EDI) measurements, the stream cross section is divided into at least five equal-flow panels and a representative suspended sediment sample is collected from each portion. For each panel of the cross section, the suspended sediment load (r) may then be computed by multiplying the flow (q) by the suspended sediment concentration (c):

$$r = q\ c$$

The suspended sediment load (R) for the cross section may be computed by adding the sediment loads for the five equal-flow panels:

$$R = r\ n = q_1c_1 + q_2c_2 + \ldots + q_nc_n$$

The depth-integrating method of sampling is used to measure the suspended sediment concentration. This method is based on the premise that the sampler fills at a rate proportional to the velocity of the approaching flow, and that by traversing the depth of a stream at a uniform speed, the sampler will receive a portion of water sediment mixture at every point in the vertical.

(b) *Single Suspended Sediment Samples at a Selected Vertical*: Single suspended sediment samples, consisting of two bottles each, are collected routinely using the depth or point-integrating samplers at a permanently fixed vertical in a cross section. During periods of very heavy sediment concentration, two or three single sediment samples may be taken per day, while during periods of low concentration, one single sediment sample may only be taken every few days. During extremely low flow periods, the sampling may be limited to one single sample in several weeks or months.

(c) *Suspended Sediment Load by Point-Integrating Method*: A limited number of suspended sediment load measurements are made by the point-integrating method. These measurements are included in the program (a) to check by comparison the "measured" sediment loads obtained by the depth-integrating method with the suspended sediment loads by the point-integrating method and (b) to obtain samples from which to determine particle-size distribution

pour la détermination de la concentration moyenne dans une section transversale;

(b) Le prélèvement d'échantillons uniques des sédiments en suspension selon une verticale choisie, afin de déterminer la concentration des sédiments les journées où le débit des sédiments en suspension n'est pas mesuré;

(c) Un nombre restreint de mesures du débit des sédiments en suspension avec intégration en un point précis d'un cours d'eau, afin de vérifier les résultats des mesures avec intégration selon la profondeur et afin de déterminer la granulométrie des particules de sédiments dans une section transversale d'un cours d'eau;

(d) L'échantillonnage des matériaux du lit afin d'en déterminer la granulométrie;

(e) La mesure périodique du charriage.

Voici une brève description des éléments susmentionnés.

(a) *Mesure du débit des sédiments en suspension par intégration selon la profondeur*: La méthode permet de déterminer le débit des sédiments en suspension traversant toute une section transversale d'un cours d'eau, la concentration moyenne des sédiments en suspension dans la section transversale et la granulométrie des sédiments en suspension. C'est un fait connu que la concentration des sédiments en suspension augmente généralement avec la profondeur et qu'elle peut varier d'une rive à l'autre d'un cours d'eau.

Avec la méthode d'incréments de débits égaux (IDE), la mesure du débit des sédiments en suspension se fait en divisant une section transversale d'un cours d'eau en au moins cinq tranches où le débit est égal et en prélevant un échantillon représentatif dans chacune d'elles. Le débit des sédiments en suspension (r) pour chaque tranche se calcule en multipliant le débit (q) par la concentration des sédiments en suspension (c):

$$r = q\ c$$

Le débit des sédiments en suspension (R) pour la section transversale est la somme des débits des sédiments des cinq tranches:

$$R = r\ n = q_1c_1 + q_2c_2 + \ldots + q_nc_n$$

La méthode par intégration sur toute la profondeur est employée pour mesurer la concentration des sédiments en suspension. Elle suppose que l'échantillonneur se remplit à un rythme proportionnel au débit de l'eau et qu'en étant déplacé à une vitesse uniforme sur toute la verticale, il reçoit une partie du mélange eau-sédiments à tous les points de celle-ci.

(b) *Prélèvement d'échantillons uniques de sédiments en suspension sur une verticale choisie*: De tels échantillons, constitués chacun de deux bouteilles, sont prélevés régulièrement à l'aide d'appareils intégrateurs, selon la profondeur ou ponctuels, sur une verticale permanente d'une section transversale. Lorsque la concentration des sédiments est très forte, deux ou trois échantillonnages peuvent être effectués chaque jour, alors qu'un seul échantillon peut être prélevé à quelques jours d'intervalle lorsqu'elle est faible. Au cours des périodes où le débit est extrêmement faible, l'échantillonnage peut être limité à un échantillon toutes les quelques semaine ou tous les quelques mois.

(c) *Mesure du débit des sédiments en suspension par la méthode ponctuelle*: Un nombre limité de mesures du débit des sédiments en suspension sont faites avec cette méthode. On y a recours a) pour vérifier les valeurs du débit mesurées au moyen de la méthode précédente et b) pour obtenir des échantillons en vue de déterminer la granulométrie des sédiments en divers points de la

at different points in the cross section. The point-integrating sediment loads are computed by graphical methods.

The relationship between the suspended sediment concentration of the single vertical samples and the average concentration in the cross section determined from the suspended sediment load measurements is established for some stations. Using this relationship, the sediment concentrations of the single vertical samples are adjusted to reflect the average suspended sediment concentration in the cross section. These average sediment concentrations in the cross sections are plotted, and a smooth curve is drawn through the points to obtain a concentration graph. This graph represents the average suspended sediment concentration for the period of record. The daily mean concentrations are determined by automated procedures using a digitizer interfaced with a Digital minicomputer.

The daily suspended sediment loads are computed on the basis of stream discharges and the collected suspended sediment concentrations. The daily suspended sediment loads are expressed in tonnes per day and are obtained by multiplying the daily mean sediment concentration (mg/L), by the daily mean discharge (m^3/s), and the conversion factor, 0.0864.

(d) *Bed Material Sampling*: In a cross section, bed material samples are usually taken in the same sampling verticals as the suspended sediment samples. Often, additional bed material samples are collected at the water edge, the extreme water level or at other points in the cross section. The total number of bed material samples taken in a cross section usually varies between five and nine.

(e) *Bed Load Measurement*: There are several methods available for measurement of bed load (volumetric method, measurement by samplers, method of tracers, method of constricted cross section, study of sound waves, etc.). The measurement methods should be selected in accordance with river regime.

4. *Total Sediment Load*

Sediment transport may be divided into two categories: sediment maintained in suspension in the stream (suspended load), and sediment being carried along the streambed (bed load). To measure the total sediment load, each of these must be measured separately and then totalled. The total sediment load was not computed for this publication.

5. *Sediment Survey Laboratories*

The Water Resources Branch maintain sediment survey laboratories in New Westminster, British Columbia; Regina, Saskatchewan; Guelph, Ontario; and Moncton, New Brunswick. The laboratories are equipped to perform the following analyses:

(a) determination of sediment concentration by (1) filtration method, (2) evaporation method and (3) determination of total dissolved solids by evaporation method.
(b) particle-size distribution analysis by (1) bottom withdrawal tube method, (2) sieving and (3) hydrometer method.

Determination of the sediment concentration by the evaporation method is carried out by evaporating the water from the settled sediment sample, with the results being corrected for dissolved solids. The quantity of dissolved solids is determined by evaporating a portion of the decanted water of a sample. In the filtration method, the suspended sediment concentration of water samples is determined by utilizing Gooch crucibles with a Reeve Angel 934AH filter and a Millipore AP20 prefilter and a vacuum system.

section transversale. Cette méthode fait appel à des graphiques pour le calcul du débit des sédiments.

Le rapport entre la concentration des sédiments en suspension dans les échantillons prélevés sur une seule verticale et la concentration moyenne dans la section transversale, telle que déterminée à partir des mesures du débit des sédiments en suspension, est établi pour quelques stations. Il permet de corriger les concentrations mesurées à une seule verticale de manière à donner la concentration moyenne dans la section transversale. Les concentrations moyennes ainsi déterminées sont reportées sur un graphique, et une courbe lisse passant par les points marqués est tracée. Le graphique obtenu représente la concentration moyenne des sédiments en suspension pour la période de relevé. Les concentrations moyennes quotidiennes sont déterminées automatiquement à l'aide d'un convertisseur analogique-numérique relié à un mini-ordinateur numérique.

Les valeurs journalières du débit des sédiments en suspension sont calculées à partir du débit du cours d'eau et des concentrations des sédiments en suspension recueillis. Elles sont exprimées en tonnes par jour. On les détermine en multipliant la concentration moyenne journalière des sédiments (mg/L) par le débit moyen journalier (m^3/s) et par un facteur de conversion approprié, 0.0864.

(d) *Échantillonnage des matériaux du lit*: Dans une section transversale les échantillons des matériaux du lit sont ordinairement prélevés aux mêmes verticales que ceux des sédiments en suspension. Souvent, des échantillons supplémentaires sont pris près des rives, là où le niveau d'eau est extrême et à d'autres points de la section transversale. Leur nombre total pour une section donnée varie ordinairement entre cinq et neuf.

(e) *Mesure du charriage*: La mesure peut se faire par plusieurs méthodes (méthode volumétrique, mesure à l'aide d'échantillonneurs, méthode des traceurs, méthode de la section transversale rétrécie, étude des ondes sonores, etc.). Le choix se fondera sur la nature du régime du cours d'eau.

4. *Débit solide total*

Il y a deux catégories de sédiments: les sédiments maintenus en suspension au sein de l'eau (sédiments en suspension), et les sédiments charriés sur le lit d'un cours d'eau (charriage de fond). Les deux types de sédiments doivent être mesurés séparément et leurs valeurs additionnées si on veut mesurer le débit total des sédiments. Toutefois, on ne l'a pas calculé aux fins de la présente publication.

5. *Laboratoires d'analyse*

La Direction des ressources en eau possède des laboratoires d'analyse des sédiments à New Westminster (Colombie-Britannique), Regina (Saskatchewan), Guelph (Ontario) et Moncton (Nouveau-Brunswick). Les laboratoires disposent des appareils nécessaires pour effectuer les analyses suivantes:

(a) la détermination de la concentration des sédiments par (1) filtration, (2) évaporation, et (3) détermination des matières dissoutes totales par évaporation.
(b) l'analyse granulométrique (1) par extraction des sédiments déposés dans un tube, (2) par l'emploi de tamis et (3) par l'utilisation d'un hydromètre.

La méthode par évaporation consiste à faire évaporer l'eau d'un échantillon de sédiments décanté et à corriger les résultats pour tenir compte des matières dissoutes. La quantité de celles-ci est déterminée en faisant évaporer une partie de l'eau de l'échantillon décanté. Dans la méthode par filtration, on utilise sous vide des creusets de Gooch munis d'un filtre Reeve Angel 934AH et d'un préfiltre Millipore AP20.

Particle-size analysis was carried out for some suspended sediment samples having gross weights in the range of 0.15 to 5 g using the Bottom Withdrawal Tube method. The particle-size distribution of the Bottom Withdrawal Tube method ranges from 0.002 to 1.000 mm. The Sieve analysis method may be used for samples with a large amount of material coarser than 0.062 mm.

The particle-size classification used in this report agrees with recommendations made by the American Geophysical Union Subcommittee on Sediment Terminology. The classification is as follows:

Classification	Size (mm)
Clay	0.000 24 - 0.004
Silt	0.004 - 0.062
Sand	0.062 - 2.0
Gravel	2.0 - 64.0

The particle-size distributions given in this report are not necessarily representative of all particles in transport in the stream. Most of the organic material is removed and the sample is subjected to mechanical and chemical dispersion before analyzed in distilled water. Chemical dispersion is not used for native-water analysis.

6. *Accuracy and Reliability of Field Data and Computed Results*

The overall accuracy and degree of reliability of the sediment data is dependent upon many factors. Some of the more important of these are:

(a) accuracy and reliability of streamflow records;
(b) regime of the river;
(c) type of sampling equipment used to collect the suspended sediment samples;
(d) frequency of suspended sediment discharge measurements;
(e) frequency of individual sampling;
(f) quality of the relationship between the average suspended sediment concentration in the cross section and the concentration of the individual samples;
(g) frequency and method of bed material sampling;
(h) frequency and method of bed load measurements;
(i) accuracy and reliability of the laboratory analysis;
(j) selected methods of computation of the suspended sediment discharge;
(k) interpretation and extrapolation of sediment records.

An assessment of the quality of the records can be made by an examination of the occurrence of the symbol (S) on the daily mean concentrations.

In general, data collected during open-water periods are more reliable than those collected during periods of ice conditions or those records obtained by estimation. Further, water level data collected utilizing a water-stage recorder are more reliable and accurate than those using a manual gauge only, especially for small or flashy streams.

Une analyse granulométrique a été effectuée pour certains échantillons de sédiments en suspension ayant un poids brut dans l'intervalle de 0.15 à 5 g par la méthode de la burette (extraction des sédiments déposés, à divers intervalles). La distribution de la taille des particules déterminée par cette méthode varie de 0.002 à 1.000 mm. La méthode de tamisage peut être employée pour les échantillons ayant une forte quantité de particules de taille supérieure à 0.062 mm.

La classification granulométrique qui est utilisée dans la présente publication est conforme aux recommandations faites par l'*American Geophysical Union Subcommittee on Sediment Terminology*. La classification est la suivante:

Classification	Taille (mm)
Argile	0.000 24 - 0.004
Limon	0.004 - 0.062
Sable	0.062 - 2.0
Gravier	2.0 - 64.0

La répartition granulométrique qui est fournie dans cette publication, n'est pas obligatoirement représentative de toutes les particules qui sont transportées par un cours d'eau donné. La plupart des matières organiques sont extraites de l'échantillon qui est ensuite soumis à une dispersion mécanique et chimique avant d'être analysé dans de l'eau distillée. La dispersion chimique ne sert pas à l'analyse de l'eau naturelle.

6. *Exactitude des données et des résultats*

L'exactitude des données sur les sédiments dépend de nombreux facteurs. On peut citer, parmi les plus importants:

(a) l'exactitude des données sur les débits;
(b) le régime d'un cours d'eau;
(c) le type d'appareil d'échantillonnage utilisé pour prélever les échantillons de sédiments en suspension;
(d) la fréquence des mesures du débit des sédiments en suspension;
(e) la fréquence des échantillonnages isolés;
(f) la qualité du rapport entre la concentration moyenne des sédiments en suspension dans une section transversale et la concentration des échantillons isolés;
(g) la fréquence des échantillonnages des matériaux de fond et la méthode utilisée;
(h) la fréquence des mesures du charriage de fond et la méthode utilisée;
(i) l'exactitude des analyses de laboratoire;
(j) les méthodes de calcul du débit des sédiments en suspension;
(k) l'interprétation et l'extrapolation des données sur les sédiments.

La qualité des données peut être évaluée d'après la fréquence d'utilisation du symbole (S), avec les données sur la concentration journalière moyenne.

En général, les données recueillies au cours des périodes d'eau libre sont plus sûres que celles qui sont obtenues au cours des périodes de glaces ou par estimation. De plus, les données sur le niveau des eaux qui sont mesurées à l'aide d'un limnigraphe sont plus certaines et plus exactes que celles qui sont mesurées à l'aide d'une jauge manuelle seulement, surtout dans le cas des petits cours d'eau ou des cours d'eau à crues très rapides.

METHOD OF TABULATION OF SEDIMENT DATA

For stations where the suspended sediment load was obtained, the following data are given where available:

1. The table of *Suspended Sediment Load* includes the daily mean discharge in cubic metres per second, the daily mean concentration in milligrams per litre, and the daily suspended sediment load in tonnes per day. The total monthly discharge and total monthly sediment load are also given for each month of record.

For stations where the sediment load in tonnes per day are produced for complete or partial years, the *Total Suspended Load* for the period is given in the descriptive information.

For stations where only suspended sediment concentrations are obtained, the table of *Suspended Sediment Load* will not be given.

Additional descriptive information about the sediment station is also given and will indicate the following, where applicable.

Location – the latitude and longitude co-ordinates of the location of the gauge are given. For stations where the gauge is located an appreciable distance from the discharge measurement section, these co-ordinates give the location of the discharge measurement section.

Drainage area – refers to that area enclosed by a topographic divide such that direct surface runoff from precipitation would drain by gravity into the stream upstream from the location of the station.

Type of Flow – where the flow is known to be natural, this is indicated. The flow of water in many river systems is affected by upstream regulation. In some cases, the extent of this regulation is not known and therefore is not indicated. However, where the regulation is known to be "appreciable", this is indicated as well as the year that the regulation began, if known.

Type of Gauge – refers to the installation or method used to obtain water level or discharge data:

(a) Manual – a non-recording type of gauge from which observations of stage normally are obtained once daily.

(b) Recording – a water-stage recorder from which continuous water levels are obtained on an analog chart. For most International Gauging Stations located in the United States, water level records are obtained utilizing a digital recorder.

International Gauging Station – on waters adjacent to the international boundary, certain gauging stations have been

PRÉSENTATION DES TABLEAUX DE DONNÉES SUR LES SÉDIMENTS

Pour les stations de mesure du débit des sédiments en suspension, les données suivantes sont présentées, pour autant qu'elles sont disponibles:

1. Le tableau concernant le *débit des sédiments en suspension* (The table of Suspended Sediment Load) donne le débit journalier moyen de l'eau, en mètres cubes par seconde, la concentration journalière moyenne, en milligrammes par litre, et le débit journalier des sédiments en suspension, en tonnes par jour. Chaque mois les données indiquent également les débits mensuels totaux de l'eau et des sédiments.

Dans le cas des stations où le débit des sédiments, en tonnes par jour, est fourni pour une année complète ou une partie de l'année, le total pour la période est indiqué.

Dans le cas des stations où seule la concentration des sédiments en suspension est obtenue, ce tableau est absent.

Des renseignements descriptifs additionnels au sujet de la station sont également présentées. On peut y apporter les précisions suivantes:

Emplacement (Location) – La latitude et la longitude de la station de jaugeage sont indiquées. Dans les cas où l'équipement de mesure est situé à une bonne distance de la section où le jaugeage est effectué, on indique les coordonnées de cette section.

Superficie du bassin versant (Drainage area) – Désigne la zone délimitée par une ligne de faîte de sorte que l'écoulement de surface direct provenant des précipitations est entraîné par gravité vers le cours d'eau, en amont de la station.

Type de débit (Type of Flow) – Un débit reconnu comme naturel est indiqué. Le débit de nombreux réseaux hydrographiques est modifié par une régularisation effectuée en amont. Dans certains cas, l'importance de cette régularisation n'est pas connue, et elle n'est donc pas indiquée. Cependant, quand on sait que la régularisation est d'une certaine importance, on l'indique, ainsi que l'année où elle a débuté (si elle est connue).

Type de jauge (Type of Gauge) – Il s'agit des jauges ou des méthodes de jaugeage utilisées pour obtenir les données sur le niveau ou le débit d'un cours d'eau.

(a) *Manuel* (Manual) – Indique qu'un appareil non enregistreur est employé pour obtenir normalement une fois par jour les données sur le niveau et le débit du cours d'eau.

(b) *Enregistreuse* (Recording) – Indique qu'un limnigraphe permet de mesurer de façon continue le niveau des eaux qui est tracé sur un graphique. La plupart des stations internationales de jaugeage des États-Unis obtiennent les données sur le niveau des eaux à l'aide d'un enregistreur numérique.

Station internationale de jaugeage (International Gauging Station) – Dans les eaux contiguës aux frontières, on a

designated as "International" and records are approved jointly. Differences between figures published herein and corresponding figures in United States Water Supply Papers are due to variations in automated data processing techniques.

Contributed Data – if data were supplied in their entirety or partially by an outside agency, the name of this co-operating agency is given.

Remarks – contains a statement pertaining to the sediment sample collection.

2. The table of *Instantaneous Suspended Sediment Concentration* for depth-integrating samples includes the following: Date and Time of the sample collection; Water Temperature; Instantaneous Discharge at time of sampling, (if not available the daily mean discharge is given and indicated by a symbol); Single Sampling Vertical location; Dissolved Solids; Percent Sand, Silt and Clay; Type of Sampler used. The particle-size distribution in percent in millimetres and the percent Sand, Silt and Clay, is given where available.

The Single Sampling Vertical Location is defined by many symbols, which are as follows, where applicable:

DIGITS - 5, 14, 130, etc., is the distance in metres from the initial point
WERB - Water's Edge RIGHT Bank
WELB - Water's Edge LEFT Bank
1QRB - One-quarter the distance FROM the RIGHT Bank
3QRB - Three-quarters the distance FROM the RIGHT Bank
1QLB - One-quarter the distance FROM the LEFT Bank
3QLB - Three-quarters the distance FROM the LEFT Bank
MID - MID STREAM
MULT - Composite sediment measurement

For the suspended sediment measurements, the Date; Time; Water Temperature at time of sampling; Discharge computed for each sampling panel; Concentration; Sampling Vertical; Dissolved Solids; Percent Sand, Silt and Clay; Type of Sampler used; and the Particle-size distribution of the Sand, Silt and Clay, in percent is given where available.

3. The table of *Split Vertical Suspended Sediment* for depth-integrating samples includes the following: Date and Time of the sample collection; Water Temperature; Instantaneous Discharge at time of sampling, (if not available the daily mean discharge is given and indicated by a symbol); Sampling Vertical; Depth of Sample (giving the depth sampled from and the depth sampled to); Concentration of Sample, in milligrams per litre, Dissolved solids, in milligrams per litre; and the Particle-size distribution in percent in millimetres and the percent Sand, Silt and Clay are also given.

désigné certaines stations comme «internationales», et les données obtenues sont approuvées par les pays concernés. Les différences entre les chiffres publiés dans la présente publications et dans les *United States Water Supply Papers* sont dues à des variantes dans les techniques de traitement automatique des données.

Données fournies (Contributed Data) – Lorsqu'un organisme extérieur a fourni toutes les données ou une partie des données, son nom est indiqué.

Remarques (Remarks) – Renseignements au sujet du prélèvement des échantillons de sédiments.

2. Le tableau des *concentrations instantanées de sédiments en suspension* (The table of Instantaneous Suspended Sediment Concentration) pour les échantillons obtenus par intégration selon la profondeur comprend: la date et l'heure de prélèvement; la température de l'eau; son débit instantané au moment de l'échantillonnage (s'il n'est pas connu, le débit journalier moyen, avec symbole); l'emplacement de la verticale d'échantillonnage; la concentration des matières dissoutes; les pourcentages de sable, de limon et d'argile; le type d'échantillonneur employé; et la granulométrie du sable, du limon et de l'argile, en pourcentage en millimètres et le pourcentage des particules est donné lorsqu'il est disponible.

Le site vertical d'échantillonnage unique est défini par plusieurs symboles dont les suivants dans certains cas :

CHIFFRE - 5, 14, 130, etc., désigne la distance en mètres à partir du point initial
WERB - Bord de l'eau, rive DROITE
WELB - Bord de l'eau, rive GAUCHE
1QRB - Un quart de la distance À PARTIR de la rive DROITE
3QRB - Trois quarts de la distance À PARTIR de la rive DROITE
1QLB - Un quart de la distance À PARTIR de la rive GAUCHE
3QLB - Trois quarts de la distance À PARTIR de la rive GAUCHE
MID - MI-DÉBIT
MULT - Mesure des sédiments mixtes

Pour les mesures des sédiments en suspension, la date, l'heure, la température de l'eau au moment de l'échantillonnage, le débit calculé pour chaque tranche de la section d'échantillonnage, la concentration et la verticale d'échantillonnage, la concentration des matières dissoutes; les pourcentages de sable, de limon et d'argile; le type d'échantillonneur employé; et la granulométrie du sable, du limon et de l'argile, en pourcentage des particules est donnée lorsqu'elle est disponible.

3. Le tableau des *sédiments en suspension fractionnés pris à la verticale* (The Table of Split Vertical Suspended Sediment) pour les échantillons obtenus par intégration selon la profondeur comprend les éléments suivants : la date et l'heure de l'échantillonnage; la température de l'eau; le débit instantané au moment de l'échantillonnage (s'il n'est pas disponible, on donne le débit moyen quotidien et on l'indique par un symbole), la verticale d'échantillonnage; la profondeur (donner la profondeur à laquelle l'échantillon a été pris); et la profondeur à laquelle l'échantillon a été attributé la concentration des échantillons, en milligrammes par litre; la concentration des matières dissoutes, en milligrammes par litre; la distribution des sédiments de la taille de particules en pourcentage en millimètres; le pourcentage de sable, de limon et d'argile.

4. The table of *Point Integrating Particle-size of Suspended Sediment* includes the following: Date and Time of the sample collection; Water Temperature; Panel Discharge for each sampling vertical; Sampling Vertical; Depth of Sample; Concentration of Sample, in milligrams per litre; Dissolved Solids in milligrams per litre, and the Particle-size distribution in percent in millimetres and the percent Sand, Silt and Clay are also given.

5. The table of *Bed Load Particle-size* includes the following: Date and Time of the sample collection; Panel Discharge; Sampling Vertical and the Type of Sampler used in the collection of the sample and the Particle-size distribution, in percent in millimetres, for each sample of bed load collected.

6. The table of *Bed Material Particle-size* includes the following: Date and Time of the sample collection; Panel Discharge; Sampling Vertical and the Type of Sampler used in the collection of the sample and the Particle-size distribution, in percent in millimetres, for each sample of bed material collected.

7. The table of *Historical Sediment Data Summary* gives the following, for the period of record, where applicable.

   (a) Record Summary
   (b) Type of Sampling
   (c) Sampled Concentration, maximum and minimum
   (d) Suspended Sediment Load, maximum daily and the total, for the period, in tonnes
   (e) Summary, including mean load, the historical mean load and the standard error of the mean in percent.

(a) The *Record Summary* gives the months of record that data are available. If the complete month is on file the symbol (C) is shown, while partial months of data are indicated by the symbol (P). Months with no data on file are indicated by (-).

(b) The *Type of Sampling* indicates the type of sampling method used to collect the sediment samples during the period of operation. If the samples were collected by manual methods this is indicated by "MANUAL." If the samples were collected by a pump sampler or some other automatic method this is indicated by "AUTO." If both manual and automatic sampling methods were used this is indicated by "DUAL."

(c) The *Sampled Concentration* gives the maximum and minimum concentration, in milligrams per litre, and the date of collection for each year of record. The extreme recorded for the period of record is indicated by an asterisk (*). If more than one maximum or minimum, of the same value, occurred during the year only the date of the first occurrence is identified by the asterisk.

(d) The *Suspended Sediment Load* gives the maximum daily load, in tonnes, and the date of occurrence. The extreme recorded is indicated by an asterisk (*). The Total for the Period gives

4. Le tableau de la *granulométrie des échantillons ponctuels et intégrés des sédiments en suspension* (The table of Point Integrating Particle-size of Suspended Sediment) comprend: la date et l'heure de prélèvement de l'échantillon, la température de l'eau, le débit de la tranche de la section pour chaque verticale d'échantillonnage, la verticale d'échantillonnage, la profondeur de l'échantillon, la concentration des échantillons, en milligrammes par litre, la concentration des matières dissoutes, en milligrammes par litre, et granulométrie en millimètres et en pourcentage du sable, du limon et de l'argile.

5. Le tableau de la *granulométrie des sédiments charriés* (The table of Bed Load Particle-size) comprend: la date et l'heure de prélèvement de l'échantillon, le débit de la tranche de la section, la verticale d'échantillonnage et le type d'échantillonneur employé et le pourcentage en millimètres des particules pour chaque échantillon recueilli du charriage.

6. Le tableau de la *granulométrie des matériaux du lit* (The table of Bed Material Particle-size) comprend: la date et l'heure de prélèvement de l'échantillon, le débit de la tranche de la section, la verticale d'échantillonnage et le type d'échantillonneur employé et le pourcentage en millimètres des particules pour chaque échantillon recueilli.

7. Le tableau du *sommaire chronologique des données sur les sédiments* (The table of Historical Sediment Data Summary) donne, pour la période pour laquelle les données sont disponibles, les renseignements suivants lorsque de telles données existent:

   (a) Le sommaire du relevé
   (b) Le type d'échantillonnage
   (c) Les concentrations mesurées, maximum et minimum
   (d) Le débit des sédiments en suspension, maximum quotidien et le total pour la période en tonnes
   (e) Résumé, comprend le débit moyen, le débit moyen chronologique et l'erreur type de la moyenne en pourcentage.

(a) Le *sommaire du relevé* donne les mois de relevé pour lesquels les données sont disponibles. Le symbole (C) indique que les données sont disponibles pour tout le mois. Le symbole (P) indique que ces données ne sont disponibles que pour une partie du mois. Enfin, on indique par (-) les mois qui n'ont pas de données.

(b) Le *type d'échantillonnage* indique le type de méthode d'échantillonnage que l'on utilise dans le prélèvement des échantillons de sédiments pendant la période d'exploitation. Si le prélèvement des échantillons se fait par des méthodes manuelles, on indique «MANUEL». Si le prélèvement des échantillons se fait au moyen d'échantillonneur à pompe ou par quelque autre méthode automatique, on indique «AUTO». Si on utilise à la fois des méthodes d'échantillonnage manuelles et automatiques, on indique «DOUBLE».

(c) Pour les *concentrations mesurées* (Sampled Concentration), on donne la concentration maximale et la concentration minimale, en milligrammes par litre, et leur date d'obtention pour chaque année de relevé. La valeur extrême enregistrée est indiquée par un astérisque (*). Si la valeur du maximum ou du minimum a été mesurée plus d'une fois pendant l'année, on signale, par l'astérisque, seulement la date de la première mesure.

(d) Sous le *débit des sédiments en suspension* (Suspended Sediment Load), on donne le débit journalier maximal, en tonnes, et sa date de mesure. Le débit extrême enregistré est indiqué

the total load for the period or year, in tonnes. The extreme recorded is also indicated by an asterisk (*). If more than one maximum or minimum, of the same value, occurred during the year only the date of the first occurrence is identified by the asterisk. A load which has been revised since the previous publication is marked with the symbol (R) for Revision.

(e) The *Summary* gives the *Mean Load* and the *Historical Mean Load* in tonnes.

The *Standard Error of the Mean* % is calculated using the following equations:

$$SEM = \frac{S}{\bar{x}\sqrt{n}} \times 100\%$$

and

$$S = \sqrt{\frac{\Sigma (x - \bar{x})^2}{n - 1}}$$

where SEM is the Standard Error of the Mean.

- S is the Standard Deviation of the annual mean loads.
- x is the annual Mean Load variable.
- $\bar{x}$ is the Historical Mean Load or the arithmetic mean of the annual Mean Loads.
- n is the number of years for which there is an annual Mean Load.

For stations with only instantaneous samples, this table will not include the *Suspended Sediment Load* or the statistical information in the *Summary*.

DEFINITION OF TERMS

The following definitions are given to clarify the terms used in this publication:

Automatic pump sample is an individual water-sediment mixture pumped from a fixed point in a stream.

Bed load is that material moving in almost continuous contact with the streambed, being rolled or pushed along the bottom by the force of the water.

Bed material is the sediment mixture of which the streambed is composed.

Daily load is the suspended sediment load expressed in tonnes for a particular day. The daily load is obtained by multiplying the daily mean sediment concentration (mg/L) by the daily mean discharge (m^3/s) and the conversion factor, 0.0864.

Daily mean concentration is a time-weighted mean value and is computed from a manually constructed concentration curve. The mean concentration value may be determined arithmetically or graphically. The arithmetic mean is obtained either by (1) selecting values from the concentration graph that represents uniform intervals of time and taking the arithmetic average or by (2) selecting values from the graph that represent unequal intervals of time and weighing these values by the

par un astérisque (*). Le débit total pour la période ou pour l'année est indiqué. La valeur extrême est également signalée par un astérisque (*). Si la valeur du maximum ou du minimum a été mesurée plus d'une fois pendant l'année, on signale, par l'astérisque, seulement la date de la première mesure. La lettre R indique qu'une valeur du débit a été révisée depuis la dernière publication.

(e) Le *résumé* donne le *débit moyen* et le *débit moyen chronologique*, en tonnes.

L'*erreur-type de la moyenne* % (Standard Error of the Mean), est calculée à l'aide des équations suivantes:

$$SEM = \frac{S}{\bar{x}\sqrt{n}} \times 100\%$$

et

$$S = \sqrt{\frac{\Sigma (x - \bar{x})^2}{n - 1}}$$

où SEM est l'erreur type de la moyenne.

- S est l'écart type des débits moyens annuels.
- x est la variable du débit moyen annuel.
- $\bar{x}$ est le débit moyen chronologique ou la moyenne arithmétique des débits moyens annuels.
- n est le nombre d'années où il y a un débit moyen annuel.

Dans le cas des stations ne prélevant que des échantillons instantanés, ce tableau ne donnera pas le *débit des sédiments en suspension* ni les données statistiques du *résumé*.

DÉFINITION DES TERMES

Les définitions suivantes sont présentées afin de faciliter la compréhension des termes utilisés dans la présente publication:

Échantillonnage automatique à l'aide d'une pompe (Automatic pump sample): Prélèvement d'un mélange de sédiments et d'eau au moyen d'une pompe fonctionnant automatiquement, en un point précis d'un cours d'eau.

Charriage (Bed load): Matières roulées ou poussées sur le fond sous l'action de l'eau, mais restant en contact presque permanent avec le fond.

Matériau du lit (Bed material): Mélange de sédiments composant le lit d'un cours d'eau.

Débit journalier des sédiments en suspension (Daily load): Débit des sédiments en suspension exprimé en tonnes par jour, pour une journée donnée. On l'obtient en multipliant la concentration journalière moyenne des sédiments (mg/L) par le débit journalier moyen de l'eau (m^3/s) et le facteur de conversion 0.0864.

Concentration journalière moyenne (Daily mean concentration): Moyenne pondérée en fonction du temps, calculée à partir d'une courbe de la concentration établie manuellement. La valeur de la concentration moyenne peut être déterminée arithmétiquement ou graphiquement. Pour la déterminer arithmétiquement, on peut, soit choisir sur la courbe des valeurs représentant des intervalles uniformes de temps et faire la moyenne arithmétique, soit choisir sur cette courbe

time intervals represented by the concentrations. For graphical explanation refer to *Office Procedures for Sediment Data Computations* and for the automated graphical explanation refer to *Automated Hydrometric Computation Procedures*.

Depth-integrated sediment sample is a suspended sediment sample collected at a single vertical in a cross section in a sampler moving vertically at a constant transit rate and represents an average sample for that part of the depth ranging from the water surface to about nine centimetres above the streambed.

Instantaneous suspended sediment sample is a sample collected at a fixed vertical in a river cross section.

Measured suspended sediment discharge is the suspended sediment discharge that can be computed from stream discharge and the concentration of sediment determined from depth-integrated sediment samples.

Particle-size analysis is the process of determining the size distribution of particles in a sediment sample.

Point-integrated sediment sample is a sample of the water-sediment mixture taken over a specified period of time at a fixed point and depth in a river cross section.

Sediment is fragmental material which has been deposited, eroded or transported by a flowing stream.

Sediment hydrograph is a graph showing the variation of suspended sediment concentration or sediment discharge with respect to time.

Single sample is a sample taken at a selected permanent vertical in a cross section. Two bottles of water-sediment mixture make up each single sample.

Single sampling vertical is a selected permanent vertical in a cross section in which single suspended sediment samples are collected.

Suspended sediment is sediment that moves in suspension in water either as a colloid or through the influence of the upward component of turbulent currents.

Suspended sediment concentration is the ratio of the weight of dry solids in a water-sediment mixture to the volume of the mixture. The units of this ratio are "milligrams per litre" (mg/L).

Suspended sediment load is the quantity of suspended sediment transported through a cross section per unit of time.

des valeurs qui représentent des intervalles inégaux de temps et pondérer ces valeurs en fonction des intervalles de temps correspondants. En ce qui concerne les méthodes graphiques, consulter *Méthodes de bureau pour les calculs de données sur les sédiments* et, pour la méthode automatisée, *Automated Hydrometric Computation Procedures*.

Échantillon intégré sur toute la profondeur (Depth integrated sediment sample): Échantillon des sédiments en suspension prélevé sur une verticale précise d'une section transversale d'un cours d'eau à l'aide d'un échantillonneur se déplaçant verticalement à une vitesse constante; il représente un échantillon moyen des matières en suspension entre la surface de l'eau et environ 9 cm du fond.

Échantillon instantané de sédiments en suspension (Instantaneous suspended sediment sample): Échantillon prélevé à une verticale précise d'une section transversale d'un cours d'eau.

Débit mesuré des sédiments en suspension (Measured suspended sediment discharge): Débit des sédiments en suspension qui peut être calculé à partir du débit du cours d'eau et de la concentration des sédiments déterminée à partir d'échantillons intégrés sur toute la profondeur.

Analyse granulométrique (Particle-size analysis): Détermination de la répartition de la taille des particules dans un échantillon de sédiments.

Échantillon ponctuel et intégré (Point-integrated sediment sample): Échantillon constitué d'un mélange d'eau et de sédiments, prélevé au cours d'une période de temps donnée en un point précis d'une section transversale d'un cours d'eau et à une profondeur donnée.

Sédiments (Sediment): Matières fragmentaires qui ont été déposées, érodées ou transportées par un cours d'eau.

Hydrogramme des sédiments (Sediment hydrograph): Graphique représentant la variation de la concentration des sédiments en suspension ou du débit des sédiments en fonction du temps.

Échantillon unique (Single sample): Échantillon prélevé sur une verticale permanente particulière dans une section transversale. Deux bouteilles du mélange eau-sédiments constituent un seul échantillon.

Verticale d'échantillonnage unique (Single sampling vertical): Verticale permanente d'une section transversale où des échantillons uniques de sédiments en suspension sont prélevés.

Sédiments en suspension (Suspended sediment): Matériaux qui se déplacent au sein de l'eau, soit sous forme colloïdale, soit sous l'influence des forces ascendantes des courants turbulents.

Concentration des sédiments en suspension (Suspended sediment concentration): Rapport entre le poids des matières solides sèches contenues dans un mélange eau-sédiments et le volume du mélange. Les unités employées sont les «milligrammes par litre» (mg/L).

Débit des sédiments en suspension (Suspended sediment load): Quantité de sédiments en suspension transportés par unité de temps à travers une section transversale d'un cours d'eau.

Total sediment load is the sum of the suspended sediment load and the bed load.

Unmeasured sediment load is the difference between total sediment load and measured suspended sediment load.

DEFINITION OF SYMBOLS

Symbols are located at the bottom of the data sets under the headings Time, Discharge, Concentration, and Dissolved Solids. The symbols with their definitions are listed below.

Time Symbol

E – *Estimated* – indicates estimated data. It indicates that the time of sample collection is estimated by some indirect method or comparison with other stream data.

Discharge Symbol(s)

A – *Manual Gauge* – indicates that one or more manual gauge observations per day were obtained and used as the mean for the day for a gauging station equipped with a recording gauge. This symbol is used during open-water periods only.

B – *Ice Conditions* – indicates the presence of ice at the gauging station. For gauging stations where discharge data are obtained, this symbol indicates that the presence of ice has affected the stage-discharge relationship.

E – *Estimated* – indicates estimated data. It indicates that the values recorded are estimated by some indirect method such as interpolation, extrapolation, comparison with other streams or by comparison with meteorological data.

H – *Daily Mean Discharge* – is the mean discharge for a particular day, usually referred to as the "daily mean discharge".

V – *Daily Mean; Manual Gauge* – is the mean discharge for a particular day and indicates that one or more manual gauge observations per day were obtained and used as the mean for the day.

W – *Daily Mean; Ice Conditions* – is the mean discharge for a particular day and indicates that the presence of ice has affected the stage-discharge relationship.

Y – *Daily Mean; Estimated* – is the mean discharge for a particular day and indicates that the value has been estimated by some indirect method.

Concentration Symbol(s)

C – *Coarse Material Present* – indicates that during the laboratory analysis coarse material (sand) was observed in the sediment sample.

Débit total des sédiments (Total sediment load): Somme du débit des sédiments en suspension et du débit charrié.

Débit non mesuré des sédiments (Unmeasured sediment load): Différence entre le débit total des sédiments et le débit mesuré des sédiments en suspension.

DÉFINITION DES SYMBOLES

Les symboles figurent au bas des séries de données et sont traités sous les rubriques Temps, Débit, Concentration, Matières solides en solution. Ces symboles avec leurs définitions sont donnés dans la liste ci-après.

Symbole du temps :

E – *Estimative* – Indique des données estimatives, c'est-à-dire que l'heure de prélèvement de l'échantillon est évaluée de façon indirecte ou par comparaison avec d'autres données sur les cours d'eau.

Symbole(s) du débit :

A – *Turbidisonde simple* – Indique qu'on a effectué à une station de jaugeage dotée d'une turbidisonde enregistreuse au moins une observation par jour à l'aide d'une turbidisonde simple et qu'on s'en est servi comme moyenne pour la journée en question. Le symbole n'est employé qu'au cours des périodes d'eau libre.

B – *Glaces* – Indique la présence de glaces à la station de jaugeage, qui ont faussé la relation hauteur-débit.

E – *Estimative* – Indique des données estimatives, c'est-à-dire que les valeurs enregistrées sont évaluées de façon indirecte, par exemple par interpolation, extrapolation, ou par comparaison avec d'autres cours d'eau ou avec des données météorologiques.

H – *Débit journalier moyen* – Débit moyen pour une journée donnée, ordinairement appelé «débit journalier moyen».

V – *Débit journalier moyen; turbidisonde simple* – Débit moyen pour une journée donnée; indique qu'on a effectué au moins une observation par jour et qu'on s'en est servi comme moyenne pour la journée en question.

W – *Débit journalier moyen; glaces* – Débit moyen pour une journée donnée; indique que la présence de glaces a faussé la relation hauteur-débit.

Y – *Débit journalier moyen; estimative* – Débit moyen pour une journée donnée; indique que la valeur a été évaluée de façon indirecte.

Symbole(s) de la concentration :

C – *Sable grossier présent* – Indique qu'au cours de l'analyse en laboratoire on a observé du sable grossier dans un échantillon de sédiments.

F – Sample Bottle Filled – indicates that during the laboratory analysis it was observed that the sample bottle had been filled to capacity.

G – Organic Material Present – indicates that during the laboratory analysis it was observed that organic material was collected in the sample bottle.

Single Vertical Symbol(s)

K – Sampling vertical not at the regular single vertical from LEFT bank – indicates that a sample was collected at a location from the left bank, in a cross-section, which is not at the regular single vertical.

L – Sediment measurement vertical not at the regular measurement cross-section from LEFT bank – indicates that the measurement sampling verticals were established from the left bank, in a cross-section which is not the regular measurement cross-section.

M – Sediment measurement vertical – indicates that the sampling vertical is one of several, usually five, and represents a panel width. The instantaneous discharge represents the flow for a panel width.

X – Sampling vertical not at the regular single vertical – indicates that a sample was collected at a location, in a cross-section, which is not at the regular single vertical. The location of the regular single vertical is given at the bottom of the Instantaneous Suspended Sediment data.

Z – Sediment measurement vertical not at the regular measurement cross-section – indicates that a suspended sediment measurement was collected in a cross-section which is not the regular measurement corss-section.

Note: If no symbol is present the samples have then been collected at the regular Single Vertical.

MICROFICHE

Sediment data to 1983 are available on microfiche, upon request. The data are stored in station number order by province. There are 270 frames per microfiche at 48X reduction; there is a visible heading showing the fiche number, type of data, province, beginning and ending station number and year of data, and the month/year the fiche was created. The last frame is an index of the contents of that fiche.

F – Flacon d'échantillonnage rempli – Indique qu'au cours de l'analyse en laboratoire on a observé que le flacon d'échantillonnage avait été complètement rempli.

G – Substance organique présente – Indique qu'au cours de l'analyse en laboratoire on a observé qu'une substance organique a été prélevée dans le flacon d'échantillonnage.

Symbole(s) de la verticale unique :

K – Verticale d'échantillonnage à l'extérieur de la verticale unique habituelle à partir de la rive GAUCHE – Indique qu'un échantillon a été prélevé à un endroit à partir de la rive gauche, dans une section transversale, mais à l'extérieur de la verticale unique habituelle.

L – Verticale de mesure des sédiments, à l'extérieur de la section transversale de mesure habituelle à partir de la rive GAUCHE – Indique que les verticales de mesure d'échantillonnage ont été établies à partir de la rive gauche, dans un section transversale à l'extérieur de la section transversale de mesure habituelle.

M – Verticale de mesure des sédiments – Indique que la verticale d'échantillonnage est l'une de plusieurs verticales, en général cinq, et qu'elle représente la dimension d'une tranche. Le débit instantané représente le débit relatif à la dimension d'une tranche.

X – Verticale d'échantillonnage à l'extérieur de la verticale unique habituelle – Indique qu'un échantillon a été prélevé à un endroit, dans une section transversale, mais à l'extérieur de la verticale unique habituelle. L'endroit de la verticale unique habituelle est donné à la fin des données sur les sédiments en suspension instantanés.

Z – Verticale de mesure des sédiments, à l'extérieur de la section transversale de mesure habituelle – Indique qu'une mesure de sédiments en suspension a été prise dans une section transversale à l'extérieur de la section transversale de mesure habituelle.

Note : S'il n'y a pas de symbole, cela indique que les échantillons ont été prélevés à la verticale unique habituelle.

MICROFICHE

Les données jusqu'à 1983 sur les sédiments sont disponibles sur microfiche. Ces données sont emmagasinées par ordre de numéro de station et par province. Chaque microfiche renferme 270 pages réduites de 48X. L'en-tête indique le numéro de la fiche, le genre de données, la province, le numéro de la première et de la dernière station, la première et la dernière année des données ainsi que le mois et l'année de création de la fiche. La dernière image donne l'index de la fiche.

EQUIVALENTS OF MEASURE

The following list of convenient equivalents of measure includes the relationship between imperial units and the International System of Units (SI).

1 inch equals 2.54 cm (centimetres)
1 foot equals 0.3048 m (metre)
1 statute mile equals 1.6093 km (kilometres)

1 cm (centimetre) equals 0.393 70 inch
1 m (metre) equals 3.2808 feet
1 km (kilometre) equals 0.621 37 mile

1 acre equals 43 560 square feet
1 acre equals 0.404 69 ha (hectare)
1 square mile equals 640 acres
1 square mile equals 2.5900 km^2 (square kilometres)
1 square mile equals 259.0 ha (hectares)

1 ha (hectare) equals 10 000 m^2 (square metres)
1 ha (hectare) equals 2.4710 acres
1 km^2 (square kilometre) equals 0.386 10 square mile

1 cubic foot equals 6.2288 imperial gallons
1 imperial gallon equals 4.546 09 L (litres)
1 imperial gallon equals 1.2010 U.S. gallons
1 U.S. gallon equals 0.133 68 cubic foot
1 cubic foot equals 0.028 317 m^3 (cubic metre)
1 m^3 (cubic metre) equals 35.315 cubic feet
1 dam^3 (cubic decametre) equals 1000 m^3 (cubic metres)
1 dam^3 (cubic decametre) equals 1 mm (millimetre) over 1 km^2 (square kilometre)

1 cubic foot per second for one day equals 1.9835 acre-feet
1 cubic foot per second for one day covers one square mile to a depth of 0.037 19 inch
1 acre-foot equals 1.2335 dam^3 (cubic decametres)
1 m^3/s (cubic metre per second) for one day equals 86.4 dam^3 (cubic decametre)
1 m^3/s (cubic metre per second) for one day covers one square kilometre to a depth of 0.0864 m (metre)

1 foot per second equals 0.6818 mile per hour
1 mile per hour equals 1.467 feet per second
1 m/s (metre per second) equals 3.6 km/h (kilometre per hour)
1 km/h (kilometre per hour) equals 0.2778 m/s (metre per second)

1 cubic foot per second equals 0.028 317 m^3/s (cubic metre per second)
1 m^3/s (cubic metre per second) equals 35.315 cubic feet per second

1 pound equals 0.453 59 kg (kilogram)
1 kg (kilogram) equals 2.2046 pounds

1 short ton (2000 pounds) equals 0.907 18 t (tonne)
1 t (tonne) equals 2204.6 pounds

degrees Celsius = 5/9 (degrees Fahrenheit - 32)
degrees Fahrenheit = 9/5 (degrees Celsius) + 32

ÉQUIVALENCES DES UNITÉS DE MESURE

Voici une liste des unités de mesure impériales et leurs équivalences dans le Système international d'unités (SI).

1 pouce vaut 2.54 cm (centimètres)
1 pied vaut 0.3048 m (mètre)
1 mille terrestre vaut 1.6093 km (kilomètre)

1 cm (centimètre) vaut 0.393 70 pouce
1 m (mètre) vaut 3.2808 pieds
1 km (kilomètre) vaut 0.621 37 mille

1 acre vaut 43 560 pieds carrés
1 acre vaut 0.404 69 ha (hectare)
1 mille carré vaut 640 acres
1 mille carré vaut 2.5900 km^2 (kilomètres carrés)
1 mille carré vaut 259.0 ha (hectares)

1 ha (hectare) vaut 10 000 m^2 (mètres carrés)
1 ha (hectare) vaut 2.4710 acres
1 km^2 (kilomètre carré) vaut 0.386 10 mille carré

1 pied cube vaut 6.2288 gallons impérials
1 gallon impérial vaut 4.546 09 L (litres)
1 gallon impérial vaut 1.2010 gallon américain
1 gallon américain vaut 0.133 68 pied cube
1 pied cube vaut 0.028 317 m^3 (mètre cube)
1 m^3 (mètre cube) vaut 35.315 pieds cubes
1 dam^3 (décamètre cube) vaut 1000 m^3 (mètres cubes)
1 dam^3 (décamètre cube) vaut 1 mm (millimètre) qui couvre 1 km^2 (kilomètre carré)

1 pied cube par seconde pendant un jour vaut 1.9835 acre-pied
1 pied cube par seconde pendant un jour couvre un volume d'un mille carré par 0.037 19 pouce
1 acre-pied vaut 1.2335 dam^3 (décamètre cube)
1 m^3/s (mètre cube par seconde) pour un jour vaut 86.4 dam^3 (décamètres cubes)
1 m^3/s (mètre cube par seconde) pour un jour couvre un kilomètre carré à une profondeur de 0.0864 m (mètre)

1 pied par seconde vaut 0.6818 mille par heure
1 mille par heure vaut 1.467 pied par seconde
1 m/s (mètre par seconde) vaut 3.6 km/h (kilomètres par heure)
1 km/h (kilomètre par heure) vaut 0.2778 m/s (mètre par seconde)

1 pied cube par seconde vaut 0.028 317 m^3/s (mètre cube par seconde)
1 m^3/s (mètre cube par seconde) vaut 35.315 pieds cubes par seconde

1 livre vaut 0.453 59 kg (kilogramme)
1 kg (kilogramme) vaut 2.2046 livres

1 tonne courte (2000 livres) vaut 0.907 18 t (tonne)
1 t (tonne) vaut 2204.6 livres

degrés Celsius = 5/9 (degrés Fahrenheit - 32)
degrés Fahrenheit = 9/5 (degrés Celsius) + 32

CO-OPERATION AND ACKNOWLEDGMENTS

Co-operative undertakings with other agencies form an important part of the activities of the Water Survey of Canada. Close co-operation has been maintained with public agencies and private organizations concerned with water resources. Data have been mutually exchanged and suspended sediment collection operations have been facilitated by the assistance received from a number of organizations.

On waters adjacent to the International Boundary, certain sediment stations are maintained by Canada (or the United States) under agreement with the United States (or Canada) and the records are collected and compiled in a manner equally acceptable to both countries. These stations are designated as "International Gauging Stations" in this publication.

For the valuable assistance and co-operation received in obtaining sediment survey records, the Water Survey of Canada is indebted to other federal and provincial organizations which are noted as contributing agencies in the summary for the year. A list of these agencies may be found in the *Sediment Data Reference Index*.

REVISIONS

A number of corrections or revisions have been made to previously published data. Many of these were required because of typographical or computational errors which were exposed when the data were stored on magnetic tape and monthly means were re-calculated by computer. Other errors were discovered or different interpretations of basic data were made during the systematic review of historical streamflow data.

Revisions to daily discharges or sediment data are not published at present. However, those stations where a systematic review has been conducted are identified in the Surface Water Data Reference Index publication. The Historical Streamflow Summary publications contain revisions to monthly and annual mean discharges, and annual extremes of discharge. Revisions, corrections or additions made to discharges and sediment after January 1, 1980, are indicated by an "R" symbol in the data summaries. Detailed information on revisions to historical data is available from the appropriate Regional Chief.

COOPÉRATION ET REMERCIEMENTS

Le travail entrepris en coopération avec d'autres organismes représente une partie importante des activités de la Division des relevés hydrologiques du Canada. On a maintenu une étroite collaboration avec les organismes, publics ou privés, qui s'intéressent aux ressources en eau. On a échangé des données sur les sédiments, et l'assistance fournie par certains organismes a facilité les opérations d'échantillonnage des sédiments en suspension.

Dans les eaux adjacentes à la frontière internationale, les stations dépendent du Canada ou des États-Unis selon l'accord intervenu entre les deux pays, et les relevés sont faits et compilés de façon à satisfaire les deux pays. Ces stations sont nommées «Stations internationales de jaugeage» dans la présente publication.

La Division des relevés hydrologiques du Canada est redevable à plusieurs organismes fédéraux et provinciaux, dont les noms apparaissent dans le sommaire de l'année, de l'aide et de la collaboration qu'ils lui ont apportées pour l'obtention des données sur les sédiments. On trouvera également les noms des organismes qui ont fourni des données dans l'*Index de référence des données sur les sédiments*.

RÉVISIONS

On a corrigé ou révisé des données déjà publiées. Il a été nécessaire d'effectuer plusieurs corrections, car on a relevé des erreurs typographiques ou de calcul lorsqu'on a enregistré les données sur rubans magnétiques et qu'on a recalculé les moyennes mensuelles à l'aide d'un ordinateur. On a aussi relevé d'autres erreurs ou fait des interprétations différentes de certaines données de base au cours de la révision systématique des données historiques sur le débit.

Les corrections apportées aux débits journaliers ou aux données sur les sédiments ne sont pas publiées, du moins pour le moment. Cependant, les stations où on a effectué une révision systématique sont indiquées dans l'*Index de référence des données sur les eaux de surface*. Les publications intitulées *Sommaire chronologique de l'écoulement* contiennent des données révisées sur les débits mensuels et annuels moyens et les extrêmes annuels du débit. Les révisions, corrections ou ajouts apportés aux données sur les débits et sur les sédiments après le 1er janvier 1980 sont indiqués par la lettre R dans les résumés des données. On peut obtenir plus de détails sur les révisions en s'adressant au chef régional concerné.

MANITOBA

ANTLER RIVER NEAR MELITA - STATION NO. 05NF002

SUSPENDED SEDIMENT FOR 1987

LOCATION: LAT 49 03 34 N LONG 101 02 56 W
DRAINAGE AREA: 3 210 km²
TYPE OF FLOW: NATURAL
TYPE OF GAUGE: RECORDING

TOTAL SUSPENDED SEDIMENT LOAD 887 TONNES FOR THE PERIOD JAN 01 TO OCT 31

REMARKS:

DAY	JAN DAILY DISCHARGE (m³/s)	JAN MEAN CONCENTRATION (mg/L)	JAN DAILY LOAD (t)	FEB DAILY DISCHARGE (m³/s)	FEB MEAN CONCENTRATION (mg/L)	FEB DAILY LOAD (t)	MAR DAILY DISCHARGE (m³/s)	MAR MEAN CONCENTRATION (mg/L)	MAR DAILY LOAD (t)	DAY
1	0.017 B	B	0.01	0.023 B	B	0.01	0.044 B	7	0.03	1
2	0.032 B	B	0.02	0.015 B	B	0.01	0.031 B	7	0.02	2
3	0.031 B	B	0.02	0.009 B	B	0	0.028 B	7	0.02	3
4	0.017 B	B	0.01	0.013 B	B	0.01	0.006 B	7	0	4
5	0.018 B	B	0.01	0.016 B	B	0.01	0.047 B	7	0.03	5
6	0.022 B	B	0.01	0.020 B	B	0.01	0.150 B	8	0.12	6
7	0.017 B	B	0.01	0.027 B	B	0.01	0.180 B	10	0.16	7
8	0.024 B	B	0.01	0.042 B	B	0.02	0.125 B	11	0.12	8
9	0.022 B	B	0.01	0.054 B	7	0.04	0.113 B	10	0.10	9
10	0.031 B	B	0.01	0.064 B	7	0.04	0.114 B	11 S	0.11	10
11	0.033 B	B	0.01	0.068 B	7	0.04	0.187 B	11	0.18	11
12	0.017 B	B	0.01	0.078 B	7	0.05	0.313 B	11	0.30	12
13	0.023 B	B	0.01	0.084 B	7	0.05	0.338 B	11	0.32	13
14	0.038 B	B S	0.02	0.085 B	7	0.05	0.331 B	11	0.31	14
15	0.050 B	B	0.02	0.085 B	7	0.04	0.367 B	11	0.35	15
16	0.041 B	B	0.02	0.065 B	7	0.03	0.484 B	10	0.40	16
17	0.037 B	B	0.02	0.056 B	7	0.03	0.828 B	10	0.48	17
18	0.032 B	B	0.01	0.044 B	7 S	0.03	0.388 B	8	0.31	18
19	0.021 B	B	0.01	0.048 B	7	0.03	0.383 B	8 S	0.30	19
20	0.028 B	B	0.01	0.073 B	7	0.04	0.384 B	8	0.30	20
21	0.028 B	B	0.01	0.087 B	7	0.04	0.861 B	18	1.25	21
22	0.027 B	B	0.01	0.085 B	7	0.04	2.20 B	18	3.42	22
23	0.028 B	B	0.01	0.084 B	7	0.04	3.48 B	18 S	4.82	23
24	0.018 B	B	0.01	0.084 B	7	0.04	5.34 B	18	7.38	24
25	0.008 B	B	0	0.081 B	7	0.03	7.84 B	19 S	12.8	25
26	0.004 B	B	0	0.037 B	7	0.02	12.8 B	49 S	54.6	26
27	0.006 B	B	0	0.034 B	7	0.02	12.3 B	27	28.7	27
28	0.009 B	B	0	0.038 B	7	0.02	11.2 B	19 S	18.4	28
29	0.013 B	B	0.01				11.1 B	20 S	19.2	29
30	0.017 B	B	0.01				9.41 B	18 S	14.5	30
31	0.020 B	B	0.01				7.83 B	13	8.57	31
TOTAL	0.718		0.33	1.368		0.60	88.884		177.78	TOTAL

DAY	APR DAILY DISCHARGE (m³/s)	APR MEAN CONCENTRATION (mg/L)	APR DAILY LOAD (t)	MAY DAILY DISCHARGE (m³/s)	MAY MEAN CONCENTRATION (mg/L)	MAY DAILY LOAD (t)	JUN DAILY DISCHARGE (m³/s)	JUN MEAN CONCENTRATION (mg/L)	JUN DAILY LOAD (t)	DAY
1	7.09 B	21 S	12.9	0.809	11	0.77	0.241	10	0.21	1
2	7.16 B	22 S	13.6	0.786	11	0.72	0.237	10	0.20	2
3	6.33 B	27 S	14.6	0.717	12	0.74	0.171	10	0.15	3
4	6.01 B	43 S	22.3	0.880	12 S	0.88	0.137	9	0.11	4
5	5.76 B	67 S	38.1	0.810	11	0.68	0.127	9	0.10	5
6	10.9 B	82 S	77.2	0.557	11 S	0.53	0.141	9	0.11	6
7	14.8	86 S	84.4	0.515	11	0.49	0.188	8	0.15	7
8	16.9	82 S	86.9	0.487	12 S	0.48	0.214	9	0.17	8
9	17.5	89 S	90.7	0.445	12	0.46	0.335	10	0.29	9
10	16.9	49 S	78.2	0.443	12	0.46	0.287	9	0.21	10
11	14.8	35 S	44.2	0.415	12	0.43	0.288	9	0.22	11
12	10.3	27 S	24.0	0.406	16 S	0.63	0.315	9	0.24	12
13	8.24	31 S	22.1	0.433	18	0.71	0.326	9	0.26	13
14	6.85	27 S	16.0	0.456	22	0.89	0.327	9 S	0.26	14
15	5.72	23	11.4	0.441	24 S	0.91	0.368	9	0.28	15
16	4.87	26 S	10.5	0.412	22	0.78	0.318	9	0.25	16
17	4.18	24 S	8.63	0.348	17	0.51	0.338	10	0.29	17
18	3.81	26 S	7.80	0.288	14	0.36	0.335	11	0.32	18
19	3.14	27 S	7.32	0.304	13	0.34	0.340	12	0.35	19
20	2.70	26	6.83	0.312	12	0.32	0.345	13	0.39	20
21	2.22	18 S	3.84	0.282	13	0.33	0.340	13 S	0.38	21
22	1.88	17	2.78	0.278	12	0.28	0.344	13	0.39	22
23	1.85	14 S	2.00	0.264	12	0.26	0.329	13	0.37	23
24	1.49	11 S	1.42	0.200	13	0.21	0.305	13	0.34	24
25	1.35	10	1.17	0.150	11	0.14	0.290	12	0.30	25
26	1.22	11 S	1.18	0.136	11 S	0.13	0.285	12	0.27	26
27	1.10	10 S	0.86	0.188	11	0.18	0.238	12	0.25	27
28	1.04	11 S	0.99	0.188	11	0.18	0.229	12 S	0.24	28
29	0.863	11	0.81	0.210	10	0.18	0.227	12	0.24	29
30	0.877	11	0.83	0.278	10	0.24	0.220	13	0.23	30
31				0.237	10 S	0.20				31
TOTAL	168.410		893.71	12.203		14.01	8.055		7.67	TOTAL

B - ICE CONDITIONS

S - SAMPLE(S) COLLECTED THIS DAY

MANITOBA

ANTLER RIVER NEAR MELITA - STATION NO. 05NF002

SUSPENDED SEDIMENT FOR 1987

DAY	JUL DAILY DISCHARGE (m^3/s)	JUL MEAN CONCENTRATION (mg/L)	JUL DAILY LOAD (t)	AUG DAILY DISCHARGE (m^3/s)	AUG MEAN CONCENTRATION (mg/L)	AUG DAILY LOAD (t)	SEP DAILY DISCHARGE (m^3/s)	SEP MEAN CONCENTRATION (mg/L)	SEP DAILY LOAD (t)	DAY
1	0.191	12	0.20	0.057	18	0.08	0	0	0	1
2	0.188	12	0.19	0.042	18	0.07	0	0	0	2
3	0.132	14	0.16	0.018	18	0.03	0	0	0	3
4	0.102	16	0.14	0.011	18	0.02	0	0	0	4
5	0.073	18	0.11	0.008	18	0.01	0	0	0	5
6	0.043	20	0.07	0.006	17	0.01	0	0	0	6
7	0.003	21 S	0.01	0.003	11	0	0	0	0	7
8	0	0	0	0.001	5	0	0	0	0	8
9	0	0	0	0	0	0	0	0	0	9
10	0	0	0	0	0	0	0	0	0	10
11	0	0	0	0	0	0	0	0	0	11
12	0	0	0	0	0	0	0	0	0	12
13	0	0	0	0	0	0	0	0	0	13
14	0	0	0	0.133	18	0.21	0	0	0	14
15	0	0	0	0.213	21 S	0.39	0	0	0	15
16	0	0	0	0.155	20	0.27	0	0	0	16
17	0	0	0	0.057	19	0.09	0	0	0	17
18	0.014	21	0.03	0.004	18	0.01	0	0	0	18
19	0.051	21	0.11	0	0	0	0	0	0	19
20	0.022	20	0.04	0	0	0	0	0	0	20
21	0.018	18	0.03	0	0	0	0	0	0	21
22	0.008	12	0.01	0	0	0	0	0	0	22
23	0.004	5	0	0	0	0	0	0	0	23
24	0	0	0	0	0	0	0	0	0	24
25	0	0	0	0	0	0	0	0	0	25
26	0	0	0	0.003	15	0	0	0	0	26
27	0	0	0	0.008	10	0.01	0	0	0	27
28	0	0	0	0.003	5	0	0	0	0	28
29	0	0	0	0	0	0	0	0	0	29
30	0.041	17	0.06	0	0	0	0	0	0	30
31	0.082	18	0.10	0	0	0				31
TOTAL	0.930		1.33	0.734		1.21	0		0	TOTAL

DAY	OCT DAILY DISCHARGE (m^3/s)	OCT MEAN CONCENTRATION (mg/L)	OCT DAILY LOAD (t)	DAILY DISCHARGE (m^3/s)	MEAN CONCENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m^3/s)	MEAN CONCENTRATION (mg/L)	DAILY LOAD (t)	DAY
1	0	0	0							1
2	0	0	0							2
3	0	0	0							3
4	0	0	0							4
5	0	0	0							5
6	0	0	0							6
7	0	0	0							7
8	0	0	0							8
9	0	0	0							9
10	0	0	0							10
11	0	0	0							11
12	0	0	0							12
13	0	0	0							13
14	0	0	0							14
15	0	0	0							15
16	0	0	0							16
17	0	0	0							17
18	0	0	0							18
19	0	0	0							19
20	0	0	0							20
21	0	0	0							21
22	0	0	0							22
23	0	0	0							23
24	0	0	0							24
25	0	0	0							25
26	0	0	0							26
27	0	0	0							27
28	0	0	0							28
29	0.001	11	0							29
30	0.025	11	0.02							30
31	0.013	11	0.01							31
TOTAL	0.038		0.03							TOTAL

S - SAMPLE(S) COLLECTED THIS DAY

ANTLER RIVER NEAR MELITA - STATION NO. OSNF002

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1987

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m³/s)		SINGLE SAMPLING VERTICAL (m)		TYPE OF SAMPLER	INSTANT. CONCENT. (mg/L)	DISSOLVED SOLIDS (mg/L)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	PERCENT SAND	SILT	CLAY
JAN 14	14:30	0.5	0.038	W	1.7	X	DIP	5	678														
FEB 16	11:20	0.5	0.044	W	1.6	X	DIP	7	698														
MAR 10	12:20	0.5	0.114	W	1.4	X	DH48	11	926														
MAR 18	11:05	0.5	0.379	B	MID		DH59	9	685														
MAR 23	10:25	0.5	4.01	B	MID		DH59	18															
MAR 25	11:50	0.5	10.1	B	MID		DH59	17															
MAR 26	09:57	0.5	15.1	B	MID		DH59	52	225														
MAR 28	17:42	0.5	13.6	B	MID		DH59	18															
MAR 29	17:26	0.5	13.3	B	MID		DH59	20															
MAR 30	18:20	0.5	11.3	B	MID		DH59	17															
APR 01	16:15	0.5	9.86	B	MID		DH59	25															
APR 02	18:02	0.5	8.74	B	MID		DH59	20	302														
APR 03	18:18	1.0	7.62	B	MID		DH59	32															
APR 04	17:00	1.0	7.53	B	MID		DH59	46															
APR 05	15:15	0.5	1.34	B	5.0	M	DH59	52	288														
APR 05	15:20	0.5	1.43	B	8.0	M	DH59	53	259														
APR 05	15:25	0.5	1.76	B	11.0	M	DH59	61	288														
APR 05	15:30	0.5	1.42	B	13.2	M	DH59	70	280														
APR 05	15:35	0.5	1.15	B	15.5	M	DH59	71	284														
APR 05	15:50	0.5	9.20	B	MID		DH59	68	282														
APR 05	17:02	0.5	9.29	B	MID		DH59	81															
APR 06	17:25	1.0	11.6		MID		DH59	78															
APR 07	11:10	0.5	15.1		MID		DH59	81															
APR 07	15:46	2.0	15.5		MID		DH59	66															
APR 08	12:40	2.0	16.7		MID		DH59	61															
APR 09	08:35	2.0	17.8		MID		DH59	63															
APR 09	20:45	2.0	18.8		MID		DH59	54	248														
APR 10	10:10	6.0	18.4		MID		DH59	48															
APR 10	10:20	8.0	18.4		MID		DH59	45															
APR 10	17:19	8.0	17.5		MID		DH59	63															
APR 11	10:30	5.0	14.8		MID		DH59	35															
APR 11	18:10	5.0	13.8		MID		DH59	28															
APR 12	13:41	6.0	9.88		MID		DH59	28	281														
APR 13	08:30	6.0	8.46		MID		DH59	31															
APR 14	18:02	10.0	6.82		MID		DH59	24															
APR 14	18:40	9.0	6.59		MID		DH59	26	330														
APR 15	09:32	10.0	4.85		MID		DH59	27															
APR 15	09:33	10.0	4.95		MID		DH59	26															
APR 15	09:35	9.5	4.85		MID		DH59	24															
APR 17	10:21	10.5	4.18		MID		DH59	24															
APR 18	17:03	11.0	3.50		MID		DH59	28															
APR 19	15:01	12.0	3.08		MID		DH59	28															
APR 21	19:45	12.5	2.08		MID		DH59	18	392														
APR 23	07:45	10.0	1.68		MID		DH59	16															
APR 24	19:05	10.5	1.44		MID		DH59	11															
APR 26	17:30	10.5	1.20		MID		DH59	11															
APR 27	07:09	11.0	1.11		MID		DH59	10															
APR 28	14:10	15.0	1.04		MID		DH59	11															
APR 28	14:40	15.0	1.04		MID		DH59	11	428														
MAY 04	07:30	16.5	0.879		MID		DH59	12	430														
MAY 06	18:34	16.0	0.539		MID		DH59	11															
MAY 08	10:33	16.0	0.488		MID		DH59	12															
MAY 12	18:25	17.0	0.407		MID		DH59	16															
MAY 15	08:42	17.0	0.462		MID		DH59	24	489														
MAY 26	10:50	15.0	0.162		MID		DH59	11															
MAY 31	15:42	15.0	0.227		MID		DH59	10	507														
JUN 14	20:13	20.0	0.342		MID		DH59	8	500														
JUN 21	11:45	18.0	0.338		MID		DH59	13	493														
JUN 28	20:10	18.5	0.237		MID		DH59	12	490														
JUL 07	10:15	23.0	0.004		MID		DH48	21	488														
AUG 15	15:19	19.5	0.171		MID		DH59	21	302														
NOV 03	11:45	5.0	0.003		MID		DIP	11	389														

NOTE : SINGLE VERTICAL LOCATED AT MID (MID STREAM) FOR 1987

DISCHARGE SYMBOL(S): B - ICE CONDITIONS W - DAILY MEAN; ICE CONDITIONS
VERTICAL SYMBOL(S): M - A SEDIMENT MEASUREMENT VERTICAL X - NOT AT REGULAR SINGLE SAMPLE VERTICAL

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF OPERATION SUMMARY (JFMAMJJASOND)	TYPE OF SAMPLING	SAMPLED CONCENTRATION MAXIMUM (mg/L)		SAMPLED CONCENTRATION MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		SUSPENDED SEDIMENT LOAD TOTAL FOR PERIOD (TONNES)	SUMMARY : MAR-OCT MEAN LOAD (TONNES)	HISTORICAL MEAN LOAD (TONNES)	HISTORICAL STANDARD ERROR OF MEAN %
1976	--CCCCCCCC--	MANUAL	70	APR 08	4	SEP 16	887	APR 12 *	8 880 *	38.3	38.3	---
1977	--CCCCCCCCCC	MANUAL	34	APR 13	6	JUN 21	0.58	MAY 22	18.3	0.07	18.2	98.6
1978	CCCCCCCCCCCC	MANUAL	20	APR 01	8	APR 18	4.81	APR 04	38.1	0.18	12.2	98.9
1979	CCCCCCCCCCCC	MANUAL	117	APR 23	0	JUL 15 *	312	APR 24	1 430	5.82	10.6	81.6
1980	CCCCCCCCCCCC	MANUAL	81	APR 18	8	APR 20	2.77	APR 18	7.85	0.03	8.48	83.1
1981	CCCCCCCCCCCC	MANUAL	17	APR 08	7	APR 28	7.93	FEB 27	28.5	0.04	7.07	83.7
1982	CCCCCCCCCCCC	MANUAL	84	APR 17	1	MAY 23	170	APR 17	808	2.47	8.41	78.7
1983	CCCCCCCCCCCC	MANUAL	27	APR 26	5	MAY 11	29.2	APR 26	265	1.18	5.78	76.7
1984	CCCCCCCCCCCC	MANUAL	21	MAR 25	2	APR 21	0.26	APR 02	5.27	0.02	5.12	77.1
1985	CCCCCCCCCCPC	MANUAL	167	NOV 7 *	2	APR 25	33.0	MAR 23	294	1.16	4.72	76.3
1986	CCCCCCCCCCC	MANUAL	43	MAY 14	3	MAR 17	25.7	MAY 13	418	1.68	4.48	72.5
1987	CCCCCCCCCP-	MANUAL	81	APR 6	5	JAN 14	80.7	APR 09	897	3.85	4.38	87.3

MANUAL - MANUAL SAMPLING

C - COMPLETE MONTH P - PARTIAL MONTH * - EXTREME FOR PERIOD OF RECORD

MANITOBA

ASSINIBOINE RIVER AT HEADINGLEY - STATION NO. 05MJ001

SUSPENDED SEDIMENT FOR 1987

LOCATION: LAT 49 52 09 N LONG 97 24 10 W
DRAINAGE AREA: 153 000 km²
TYPE OF FLOW: REGULATED
TYPE OF GAUGE: RECORDING

TOTAL SUSPENDED SEDIMENT LOAD 244 000 TONNES FOR THE PERIOD MAR 01 TO OCT 31

REMARKS:DEC. 1987, NOV, DEC, JAN & FEB SAMPLED ONLY ABOVE SPECIFIED FLOWS

	MAR			APR			MAY			
DAY	DAILY DISCHARGE (m³/s)	MEAN CONCENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CONCENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CONCENTRATION (mg/L)	DAILY LOAD (t)	DAY
1	19.5 B	66	113	88.5 B	133	784	116	167 S	1 670	1
2	20.0 B	66	114	82.4 B	175	1 250	111	147	1 410	2
3	19.8 B	66	113	91.0 B	219	1 720	105	128 S	1 180	3
4	19.9 B	67	115	99.7 B	268	2 310	104	117 S	1 050	4
5	19.7 B	67	114	118 B	322	3 310	101	102	880	5
6	19.3 B	66	110	140 B	386	4 850	98.2	111 S	942	6
7	18.9 B	66	108	134 B	463 S	5 360	94.8	137	1 120	7
8	19.1 B	66	108	188 B	520 S	8 450	90.3	128 S	889	8
9	20.2 B	66	115	246 B	1 120 S	23 800	88.2	116	888	9
10	20.7 B	66 S	118	224 A	827 S	17 900	83.8	118	828	10
11	21.0 B	64	116	221 E	820 S	15 700	82.8	115	824	11
12	20.8 B	65	117	178	575 S	8 890	78.3	116	788	12
13	19.8 B	65	112	171	513 S	7 580	75.7	116	752	13
14	18.8 B	66	106	176	583 S	8 870	73.2	116	727	14
15	18.1 B	65	102	173	568 S	8 340	70.8	115	704	15
16	19.3 B	65	108	170	571 S	8 380	66.7	113	653	16
17	20.9 B	64	116	172	659 S	9 940	62.8	114	61[illegible]	17
18	21.4 B	64	118	188	828	9 170	63.4	113	618	18
19	20.7 B	64	114	189	846	8 000	61.7	111	592	19
20	20.2 B	65	113	180	377 S	6 180	58.5	110	556	20
21	19.4 B	65	108	187	413 S	7 030	54.1	110	514	21
22	18.3 B	65	103	181	293 S	4 580	51.5	110	488	22
23	18.0 B	65	101	181	284 S	3 440	47.0	109	443	23
24	18.2 B	80	84.3	184	202 S	2 690	42.7	109	402	24
25	18.2 B	58	81.2	149	173 S	2 230	41.1	108	384	25
26	18.0 B	58	85.2	138	166 S	1 980	40.0	108	373	26
27	21.4 B	60	111	134	134 S	1 550	39.1	107	361	27
28	24.7 B	61	130	128	156 S	1 730	38.8	108	355	28
29	32.8 B	63	178	118	157 S	1 600	38.3	104	344	29
30	44.8 B	78	302	118	165	1 680	37.0	102	326	30
31	55.5 B	98	476				35.2	101	307	31
TOTAL	688.9		4 042.7	4 648.8		188 134	2 152.8		22 104	TOTAL

	JUN			JUL			AUG			
DAY	DAILY DISCHARGE (m³/s)	MEAN CONCENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CONCENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CONCENTRATION (mg/L)	DAILY LOAD (t)	DAY
1	34.8	88 S	266	21.2	125 S	229	18.2	81	127	1
2	34.8	87	262	21.8	178	334	18.8	73	105	2
3	36.1	86	268	21.7	218	405	18.7	84	88.8	3
4	35.5	84	266	21.5	215 S	399	18.4	88 S	74.5	4
5	33.7	83	271	21.4	180	298	18.8	88	74.1	5
6	33.5	81	283	20.7	105 S	188	18.0	82	71.8	6
7	33.5	88	256	20.3	78	139	18.4	82	73.7	7
8	32.8	87	245	20.0	78 S	135	17.2	84	80.2	8
9	31.0	84	225	19.7	78	134	17.2	87	84.7	9
10	30.5	82	216	20.8	168	281	17.2	84	85.1	10
11	29.8	79 S	203	20.4	231 S	407	18.0	87 S	104	11
12	28.3	78	187	20.1	217	377	19.1	89	114	12
13	26.3	77	168	21.7	220	412	19.8	77	130	13
14	26.7	78	175	23.8	252 S	514	20.7	94 S	168	14
15	26.8	78	168	23.8	241	498	24.7	110	235	15
16	26.3	78	184	23.8	229	471	28.2	125	305	16
17	26.7	74	184	23.4	218	437	33.6	142	411	17
18	24.3	74	155	22.8	203	395	48.3	180	640	18
19	23.7	78	164	23.4	191	388	60.0	159	887	19
20	23.3	74	148	23.7	181	371	44.1	148	586	20
21	21.6	74	138	23.8	189	349	37.1	132	423	21
22	20.7	73 S	131	23.1	158	315	31.0	124	332	22
23	21.7	74	138	22.7	139 S	273	27.7	122	282	23
24	22.0	75	143	22.1	88 S	168	26.1	120	271	24
25	22.3	73 S	141	21.8	75	141	26.4	117	267	25
26	21.8	73	138	21.8	84	158	23.8	116	234	26
27	21.5	74	137	21.2	89	161	22.0	111 S	211	27
28	21.3	75 S	138	20.7	112	200	20.7	98	172	28
29	21.1	83	151	18.8	107 S	183	19.3	84	140	29
30	21.2	82	149	18.8	98	157	18.0	80	131	30
31				19.0	82 S	151	18.5 A	82 S	131	31
TOTAL	813.2		5 784	670.0		9 085	740.1		5 617.0	TOTAL

A - MANUAL GAUGE B - ICE CONDITIONS E - ESTIMATED S - SAMPLE(S) COLLECTED THIS DAY

ASSINIBOINE RIVER AT HEADINGLEY - STATION NO. 05MJ001

SUSPENDED SEDIMENT FOR 1987

DAY	SEP DAILY DISCHARGE (m^3/s)	SEP MEAN CONCENTRATION (mg/L)	SEP DAILY LOAD (t)	OCT DAILY DISCHARGE (m^3/s)	OCT MEAN CONCENTRATION (mg/L)	OCT DAILY LOAD (t)	DAILY DISCHARGE (m^3/s)	MEAN CONCENTRATION (mg/L)	DAILY LOAD (t)	DAY
1	18.5 A	85	152	16.7	52	75.0				1
2	18.5 A	126	201	17.2	50	74.3				2
3	18.3	170 S	268	17.1	49	72.4				3
4	18.8	178	306	17.7	54	82.6				4
5	20.3	155	272	19.5	53	105				5
6	20.8	123 S	222	21.0	59	107				6
7	21.3	108	195	22.5	56	109				7
8	21.4	92	170	22.6	54	105				8
9	21.5	84	156	21.8	53	99.8				9
10	21.4	77	142	21.4	51	94.3				10
11	20.5	74	131	21.7	49	91.8				11
12	21.8	93	176	21.8	47	87.7				12
13	23.7	86	176	21.3	45	82.6				13
14	22.7	85	127	21.5	44	81.7				14
15	21.7	59	111	20.4	42	74.0				15
16	21.2	57	104	19.1	4	87.7				16
17	20.8	56	101	18.6	39	82.7				17
18	19.8	55	95.8	18.1	37	87.8				18
19	18.2	60	94.3	17.8	38	85.4				19
20	22.4	73	141	17.8	38	85.4				20
21	23.6	70	143	17.5	76 S	82.9				21
22	24.8	67	144	17.3	36	82.3				22
23	25.0	62	138	17.8	36	84.1				23
24	22.5	61	119	18.1	36	84.7				24
25	21.0	60	109	18.5	36	87.5				25
26	20.6	58	103	17.1	35	87.8				26
27	19.6	56	94.6	16.9	34	85.5				27
28	20.6	56	99.7	16.8	33	83.6				28
29	21.6	59	111	16.9	32	82.3				29
30	18.8	53	86.1	16.8	32	82.0				30
31				16.3	31	49.0				31
TOTAL	633.2		4 487.7	597.5		2 234.3				TOTAL

A - MANUAL GAUGE

S - SAMPLE(S) COLLECTED THIS DAY

MANITOBA

ASSINIBOINE RIVER AT HEADINGLEY - STATION NO. 05MJ001

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1987

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m³/s)		SINGLE SAMPLING VERTICAL (m)		TYPE OF SAMPLER	INSTANT. CONCENT. (mg/L)	DISSOLVED SOLIDS (mg/L)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	PERCENT SAND	SILT	CLAY
MAR 10	14:05	0.5	20.7	B	75.0		DH48	88	581														
APR 07	10:20	3.0	134	W	75.0		DH59	508	232	20	26	43	50	62	70	84	98	100			30	44	26
APR 08	10:37	4.0	188	W	75.0		DH59	552	328	28	36	57	68	88	98	100					1	93	36
APR 08	16:25	5.0	63.3	B	120	M	DH59	1280	344	38	44	63	80	92	96	100					4	52	44
APR 08	16:30	5.0	60.8	B	85.0	M	DH59	1430	334	26	35	55	74	86	93	98	100				7	58	35
APR 08	16:35	5.0	48.5	B	75.0	M	DH59	1480	348	28	33	55	71	84	91	95	99	100			9	58	33
APR 08	16:40	5.0	49.8	B	80.0	M	DH59	1490	341	31	34	54	69	84	92	96	99	100			8	58	34
APR 08	16:45	5.0	43.7	B	40.0	M	DH59	1420	281	31	37	61	76	88	95	98	100				5	58	37
APR 10	08:25	4.0	224	V	75.0		DH59	838	241	30	34	74	90	96	98	98	99	100			4	42	54
APR 10	16:14	3.0	224	V	75.0		DH59	1030															
APR 11	11:25	3.0	221	Y	75.0		DH59	852															
APR 11	11:25	3.0	221	Y	75.0		DH59	882															
APR 12	12:05	4.0	177		75.0		DH59	585															
APR 12	17:40	4.0	171		75.0		DH59	519															
APR 13	06:30	5.0	170		75.0		DH59	498															
APR 13	18:00	5.0	172		75.0		DH59	530															
APR 14	06:30	5.0	178		75.0		DH59	541															
APR 14	08:00	6.0	34.0		125	M	DH59	623	310	31	45	66	83	93	97	99	100						
APR 14	08:10	6.0	40.7		100	M	DH59	644	318	28	38	62	78	90	95	98	100				3	52	45
APR 14	08:20	6.0	34.3		75.0	M	DH59	636	319	27	41	69	78	92	96	98	100				5	57	38
APR 14	08:30	6.0	33.6		80.0	M	DH59	655	313	26	40	69	77	91	96	98	100				4	55	41
APR 14	08:40	6.0	34.0		40.0	M	DH59	652	310	31	37	64	78	90	94	98	98	100			4	56	40
APR 14	16:35	6.0	176		75.0		DH59	556													6	57	37
APR 15	06:35	6.0	175		75.0		DH59	571															
APR 15	16:25	6.0	171		75.0		DH59	538															
APR 16	06:35	7.0	169		75.0		DH59	556															
APR 16	16:25	7.0	171		75.0		DH59	572															
APR 17	06:30	7.0	172		75.0		DH59	578															
APR 20	06:35	6.0	184		75.0		DH59	461															
APR 20	16:00	6.0	188		75.0		DH59	305															
APR 21	13:50	10.0	48.0		120	M	DH59	388	322	32	39	62	74	88	95	99	100						
APR 21	13:55	10.0	43.1		85.0	M	DH59	408	319	30	40	60	72	87	95	98	100				5	58	38
APR 21	14:00	10.0	33.3		75.0	M	DH59	436	323	32	38	58	73	82	92	98	100				5	55	40
APR 21	14:05	10.0	37.1		80.0	M	DH59	428	325	24	37	57	67	83	89	95	99	100			6	53	39
APR 21	14:10	10.0	34.8		40.0	M	DH59	436	317	31	40	60	70	82	89	94	98	100			11	52	37
APR 22	06:40	5.0	180		75.0		DH59	309													11	49	40
APR 22	18:30	6.0	170		75.0		DH59	285															
APR 23	06:25	6.0	160		75.0		DH59	287															
APR 23	16:50	7.0	161		75.0		DH59	288															
APR 24	06:30	8.0	154		75.0		DH59	217															
APR 24	18:00	10.0	154		75.0		DH59	208															
APR 25	11:30	11.0	150		75.0		DH59	170															
APR 25	18:30	11.0	137		75.0		DH59	187															
APR 27	06:30	11.0	138		75.0		DH59	151															
APR 27	18:00	11.0	133		75.0		DH59	181	372														
APR 28	06:40	10.0	131		75.0		DH59	156															
APR 28	16:00	11.0	127		75.0		DH59	181															
APR 28	06:30	11.0	118		75.0		DH59	167															
MAY 01	11:30	12.0	117		75.0		DH59	177															
MAY 02	16:00	13.0	105		75.0		DH59	128															
MAY 04	16:05	13.0	104		75.0		DH59	123	458														
MAY 08	16:00	13.0	97.8		75.0		DH59	124															
MAY 08	16:10	14.0	80.2		75.0		DH59	128															
JUN 01	16:00	16.0	34.7		75.0		DH59	104															
JUN 11	13:00	21.0	8.32		120	M	DH59	80	580														
JUN 11	13:05	21.0	8.58		85.0	M	DH59	77	567														
JUN 11	13:10	21.0	8.80		75.0	M	DH59	83	580														
JUN 11	13:15	21.0	8.23		80.0	M	DH59	80	570														
JUN 11	13:20	21.0	4.71		40.0	M	DH59	74	585														
JUN 22	12:30	27.0	30.7		75.0		DH59	76															
JUN 25	16:50	21.0	22.2		75.0		DH59	77															
JUN 26	17:30	25.0	21.2		75.0		DH59	79															
JUL 01	16:00	26.0	21.1		75.0		DH59	138	612														
JUL 04	15:30	27.0	21.3		75.0		DH59	227															
JUL 08	13:00	24.0	20.7		75.0		DH59	103															
JUL 08	18:38	20.0	20.0		75.0		DH59	82	583														
JUL 11	15:32	20.0	20.3		75.0		DH59	245															
JUL 14	16:05	23.0	23.7		75.0		DH59	285	648														
JUL 23	12:00	23.0	4.83		120	M	DH59	146	539														
JUL 23	12:05	23.0	5.08		85.0	M	DH59	137	538														
JUL 23	12:10	23.0	4.34		75.0	M	DH59	183	544														
JUL 23	12:15	23.0	4.48		80.0	M	DH59	181	541														
JUL 23	12:20	23.0	4.19		40.0	M	DH59	144	544														
JUL 24	15:00	24.0	21.9		75.0		DH59	86															
JUL 28	13:30	23.0	18.7		75.0		DH59	111															
JUL 31	14:30	23.0	18.8		75.0		DH59	86	528														
AUG 04	16:00	23.0	18.4		75.0		DH59	87															
AUG 11	16:00	21.0	18.1		75.0		DH59	87	518														
AUG 14	15:30	20.0	20.7		75.0		DH59	103															
AUG 27	08:40	18.0	4.88		120	M	DH59	108	478														
AUG 27	08:45	18.0	4.84		85.0	M	DH59	112	482														
AUG 27	08:50	18.0	4.47		75.0	M	DH59	126	477														
AUG 27	08:55	18.0	4.44		80.0	M	DH59	118	487														
AUG 27	10:00	18.0	3.88		40.0	M	DH59	114	488														
AUG 31	13:10	16.0	18.5	V	75.0		DH59	88															
SEP 03	13:00	17.0	18.1		75.0		DH59	164															
SEP 08	15:00	17.0	20.9		75.0		DH59	123															
OCT 21	13:05	3.0	3.70		115	M	DH59	32	578														
OCT 21	13:10	3.0	3.36		85.0	M	DH59	37	582														
OCT 21	13:15	3.0	3.48		75.0	M	DH59	38	582														
OCT 21	13:20	3.0	4.08		80.0	M	DH59	36	577														
OCT 21	13:25	3.0	2.85		40.0	M	DH59	33	582														

NOTE : SINGLE VERTICAL LOCATED AT 75.0 METRES FOR 1987

DISCHARGE SYMBOL(S): B - ICE CONDITIONS V - DAILY MEAN; MANUAL GAUGE W - DAILY MEAN; ICE CONDITIONS
Y - DAILY MEAN; ESTIMATED

VERTICAL SYMBOL(S): M - A SEDIMENT MEASUREMENT VERTICAL

ASSINIBOINE RIVER AT HEADINGLEY - STATION NO. 05MJ001

POINT INTEGRATING PARTICLE-SIZE ANALYSIS OF SUSPENDED SEDIMENT FOR 1987

DATE	TIME	WATER TEMP. (°C)	PANEL DISCHARGE (m^3/s)	SAMPLING VERTICAL (m)	DEPTH OF SAMPLE (m)	CONCENT. OF SAMPLE (mg/L)	DISSOLVED SOLIDS (mg/L)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	PERCENT SAND	PERCENT SILT	PERCENT CLAY
APR 08	16:50	5.0	83.3 B	120	2.74	1340	242	28	39	59	74	85	92	98	100				8	53	39
APR 08	16:52	5.0	83.3 B	120	2.37	1340	242	33	39	55	75	87	95	99	100				5	56	39
APR 08	16:54	5.0	83.3 B	120	1.42	1400	253	26	34	60	74	85	94	98	100				6	60	34
APR 08	16:56	5.0	83.3 B	120	0.20	1380	280	26	39	58	76	88	95	98	100				5	56	39
APR 08	17:00	5.0	80.8 B	85	2.62	1480	288	21	35	52	70	81	89	94	98	100			11	54	35
APR 08	17:02	5.0	80.8 B	85	2.16	1480	263	32	43	58	74	85	92	98	99	100			8	49	43
APR 08	17:04	5.0	80.8 B	85	1.36	1430	251	24	40	60	75	87	94	98	100				6	54	40
APR 08	17:06	5.0	80.8 B	85	0.20	1380	285	32	44	63	80	90	96	98	100				4	52	44
APR 08	17:10	5.0	48.5 B	75	2.90	1770	355	27	34	52	80	88	75	81	93	98	100		25	41	34
APR 08	17:12	5.0	48.5 B	75	2.40	1470	283	26	35	55	70	82	90	94	99	100			10	55	35
APR 08	17:14	5.0	48.5 B	75	1.50	1410	241	26	35	59	71	85	92	98	98	100			6	57	35
APR 08	17:16	5.0	48.5 B	75	0.90	1400	281	34	40	53	76	87	93	97	100				7	53	40
APR 08	17:18	5.0	48.5 B	75	0.30	1320	281	32	41	55	75	90	96	98	100				4	55	41
APR 08	17:25	5.0	48.8 B	50	2.84	1500	280	27	38	58	89	80	95	91	98	100			14	50	36
APR 08	17:27	5.0	48.8 B	50	2.35	1480	283	26	35	56	71	80	87	91	97	100			13	52	35
APR 08	17:29	5.0	48.8 B	50	1.47	1400	280	31	37	62	74	88	93	97	100				7	55	37
APR 08	17:30	5.0	48.8 B	50	0.20	1350	242	26	41	60	79	85	96	99	100				4	55	41
APR 08	17:35	5.0	43.7 B	40	2.78	1480	242	33	45	65	77	84	91	95	99	100			8	48	45
APR 08	17:37	5.0	43.7 B	40	2.28	1470	251	33	42	64	75	83	90	95	98	100			10	48	42
APR 08	17:40	5.0	43.7 B	40	1.43	1380	254	27	40	60	73	84	92	98	99	100			8	52	40
APR 08	17:42	5.0	43.7 B	40	0.20	1350	243	27	42	64	78	88	92	97	99	100			3	60	42

NOTE - SINGLE VERTICAL LOCATED AT 75.0 METRES FOR 1987

DISCHARGE SYMBOL(S): B - ICE CONDITIONS

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF OPERATION SUMMARY (JFMAMJJASOND)	TYPE OF SAMPLING	SAMPLED CONCENTRATION MAXIMUM (mg/L)			MINIMUM (mg/L)			SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)			TOTAL FOR PERIOD (TONNES)	SUMMARY : JAN-DEC MEAN LOAD (TONNES)	HISTORICAL MEAN LOAD (TONNES)	STANDARD ERROR OF MEAN %
1956	---PCP------	MANUAL	870	APR 25		110	MAY 31		40 200	APR 26		644 000	---	---	---
1957	---PCC------	MANUAL	1 370	MAY 02		170	JUN 24		24 100	MAY 02		830 000	---	---	---
1958	---P---------	MANUAL	2 270	APR 08	*	125	APR 30		43 000	APR 08		286 000	---	---	---
1959	---P---------	MANUAL	1 890	APR 15		205	APR 30		19 300	APR 15		87 200	---	---	---
1961	---P--CCCCCC	MANUAL	780	APR 20		13	AUG 21		3 630	APR 19		17 500	---	---	---
1962	CCCCCCCCCCCC	MANUAL	1 410	APR 24		20	JAN 23		37 300	APR 24		283 000	778	778	---
1963	CCCCCCCCCCCC	MANUAL	1 480	APR 11		42	MAR 26		18 200	APR 11		287 000	705	741	4.8
1964	CCCCCCCCCCCC	MANUAL	1 450	APR 18		18	APR 10		25 400	APR 18		320 000	874	785	8.2
1965	CCCCCCCCCCCC	MANUAL	1 370	APR 18		22	NOV 25		37 200	APR 18		598 000	1 630	898	21.5
1966	CCCCCCCCCCCC	MANUAL	935	APR 13		20	FEB 14		22 900	APR 13		532 000	1 480	1 080	17.4
1967	CCCCCCCCCCCC	MANUAL	1 170	APR 20		14	DEC 01		22 200	APR 20		413 000	1 130	1 100	14.1
1968	CCCCCCCCCCCC	MANUAL	1 000	APR 12		11	NOV 20		12 000	APR 11		181 000	440	1 000	16.1
1969	CCCCCCCCCCCC	MANUAL	2 110	APR 18		4	MAR 21	*	58 800	APR 17	*	887 000	2 430	1 180	18.2
1970	CCCCCCCCCCCC	MANUAL	1 080	APR 30		27	OCT 07		24 800	APR 30		577 000	1 580	1 230	18.8
1971	CCCCCCCCCCCC	MANUAL	835	APR 17		28	MAR 26		8 880	APR 17		405 000	1 120	1 210	15.2
1972	CCCCCCCCCCCC	MANUAL	944	MAY 03		13	AUG 28		13 900	MAY 03		548 000	1 500	1 240	13.8
1973	CCCCCCCCCCCC	MANUAL	428	APR 05		42	FEB 14		2 320	APR 05		81 200	222	1 180	15.1
1974	CCCCCCCCCCCC	MANUAL	1 880	APR 23		88	OCT 21		49 400	APR 23		844 000	2 310	1 240	14.8
1975	CCCCCCCCCCCC	MANUAL	1 380	MAY 03		42	APR 03		21 800	MAY 03		835 000	2 290	1 320	14.1
1976	CCCCCCCCCCCC	MANUAL	1 220	APR 15		48	JAN 18		36 200	APR 15		1 090 000	* 2 980	1 430	14.3
1977	CCCCCCCCCCCC	MANUAL	204	APR 13		13	MAR 16		1 030	APR 13		48 700	128	1 380	15.4
1978	CCCCCCCCCCCC	MANUAL	1 180	APR 21		83	OCT 04		14 200	APR 21		232 000	637	1 210	15.3
1979	CCCCCCCCCCCC	MANUAL	1 180	APR 21		47	SEP 12		26 300	APR 26		1 020 000	2 800	1 380	14.8
1980	CCCCCCCCCCCC	MANUAL	845	APR 17		27	MAR 20		7 280	APR 17		108 000	290	1 330	15.3
1981	CCCCCCCCCCCC	MANUAL	305	APR 08		11	SEP 28		1 180	APR 02		35 700	87.7	1 270	15.9
1982	CCCCCCCCCCCC	MANUAL	1 180	APR 18		8	MAR 29		28 100	APR 18		285 000	727	1 240	15.7
1983	CCCCCCCCCCCC	MANUAL	985	APR 18		41	DEC 14		17 800	APR 18		485 000	1 270	1 240	14.9
1984	CCCCCCCCCCCC	MANUAL	858	JUN 20		10	MAR 22		3 540	JUN 22		81 800	250	1 200	15.2
1985	CCCCCCCCCCCC	MANUAL	1 800	JUN 13		38	NOV 26		18 000	APR 11		338 000	924	1 180	14.7
1986	CCCCCCCCCCCC	MANUAL	1 040	APR 8		36	MAR 6		24 800	APR 05		418 000	1 140	1 190	14.1
1987	--CCCCCCCC--	MANUAL	1 490	APR 8		32	OCT 21		23 800	APR 08		344 000	---	---	---

MANUAL - MANUAL SAMPLING

C - COMPLETE MONTH P - PARTIAL MONTH * - EXTREME FOR PERIOD OF RECORD

MANITOBA

ASSINIBOINE RIVER NEAR HOLLAND - STATION NO. 05MH001

SUSPENDED SEDIMENT FOR 1987

LOCATION: LAT 49 41 54 N LONG 98 53 56 W
DRAINAGE AREA: 152 000 km²
TYPE OF FLOW: REGULATED
TYPE OF GAUGE: RECORDING

TOTAL SUSPENDED SEDIMENT LOAD 305 000 TONNES FOR THE PERIOD MAR 01 TO NOV 30

REMARKS:DEC. 1987, NOV, DEC, JAN & FEB SAMPLED ONLY ABOVE SPECIFIED FLOWS

DAY	MAR DAILY DISCHARGE (m³/s)	MAR MEAN CONCENTRATION (mg/L)	MAR DAILY LOAD (t)	APR DAILY DISCHARGE (m³/s)	APR MEAN CONCENTRATION (mg/L)	APR DAILY LOAD (t)	MAY DAILY DISCHARGE (m³/s)	MAY MEAN CONCENTRATION (mg/L)	MAY DAILY LOAD (t)	DAY
1	23.0 B	20	39.7	136 B	80	940	107	116 S	1 070	1
2	21.3 B	17	31.3	141 B	83	1 010	104	110 S	988	2
3	19.6 B	17	28.8	150 B	93	1 280	101	98 S	838	3
4	22.3 B	16	30.8	200 B	141	2 440	88.7	88 S	836	4
5	23.4 B	17	34.4	232 B	271	5 430	87.0	91 S	763	5
6	23.3 B	19	38.2	327 B	1 410 S	39 800	83.5	80 S	727	6
7	23.6 B	19	38.6	333 B	1 100 S	31 600	80.0	82 S	638	7
8	22.7 B	19	37.3	321 B	818 S	22 700	86.5	80 S	598	8
9	21.0 B	18	32.7	321	721 S	20 000	82.8	88 S	673	9
10	18.3 B	18 S	28.5	310	678 S	18 100	78.6	78 S	636	10
11	18.0 B	18	28.5	319	803 S	18 800	75.4	76 S	688	11
12	22.7 B	18	35.3	324	692 S	18 800	72.0	74 S	680	12
13	24.2 B	18	37.6	321	652 S	18 300	68.0	78 S	684	13
14	24.6 B	18	38.6	313	641 S	14 800	64.8	78 S	626	14
15	24.1 B	18	37.5	282	535 S	13 500	61.5	88 S	581	15
16	23.6 B	20	40.8	261	441 S	9 940	59.1	58 S	286	16
17	22.6 B	19	37.4	234	389 S	7 480	57.0	57 S	281	17
18	24.3 B	19	39.9	215 A	334	6 200	54.9	59 S	280	18
19	24.2 B	19	39.7	197 A	305	5 210	50.3	57 S	248	19
20	24.9 B	19	40.9	180 A	280 S	4 350	45.8	44 S	173	20
21	25.8 B	19	42.5	165 A	247 S	3 520	42.1	46 S	167	21
22	26.6 B	20	46.0	154	214 S	2 850	38.6	39 S	134	22
23	28.4 B	22	55.9	148	185 S	2 480	37.5	32 S	104	23
24	26.4 B	25	78.6	140	177 S	2 140	36.4	31 S	97.5	24
25	48.0 B	30 S	124	134	165 S	1 910	36.7	36 S	114	25
26	81.7 B	38	208	128	148 S	1 650	36.1	35 S	109	26
27	76.0 B	51	344	124	153 S	1 640	34.7	32 S	95.9	27
28	63.7 B	83	458	118	140 S	1 430	34.3	37 S	110	28
29	110 B	73	694	114	144 S	1 420	34.4	43 S	128	29
30	127 B	77	845	111	118 S	1 100	35.1	46 S	140	30
31	130 B	78	878				35.5	50 S	153	31
TOTAL	1 309.7		4 487.5	6 471		273 190	1 950.7		12 289.4	TOTAL

DAY	JUN DAILY DISCHARGE (m³/s)	JUN MEAN CONCENTRATION (mg/L)	JUN DAILY LOAD (t)	JUL DAILY DISCHARGE (m³/s)	JUL MEAN CONCENTRATION (mg/L)	JUL DAILY LOAD (t)	AUG DAILY DISCHARGE (m³/s)	AUG MEAN CONCENTRATION (mg/L)	AUG DAILY LOAD (t)	DAY
1	34.8	48 S	148	23.6	40	81.6	16.8	69	79.5	1
2	33.9	64 S	188	22.9	40 S	79.1	15.8	80	80.0	2
3	34.6	66 S	194	22.0	40	76.0	16.8	68	88.9	3
4	34.0	47 S	138	22.3	41	79.0	17.1	73 S	108	4
5	32.6	43 S	121	22.1	41	78.3	17.6	71	107	5
6	31.3	42	114	23.3	45	90.8	17.8	70	108	6
7	30.2	41	107	24.3	53	111	18.2	68	109	7
8	29.8	38 S	98.4	24.7	57	123	18.8	67	109	8
9	28.8	37 S	91.4	25.3	64	140	19.1	65	107	9
10	27.8	34	81.1	27.7	76	182	19.4	64	107	10
11	27.1	31 S	72.8	27.8	77	184	20.5	64	113	11
12	26.3	31	70.4	27.4	77	182	20.4	66	116	12
13	26.7	33 S	73.3	26.6	71 S	163	20.6	68	121	13
14	26.8	35	76.0	24.8	72	154	24.1	78	184	14
15	33.8	35 S	72.3	24.6	76 S	161	39.8	116	387	15
16	33.4	34	68.7	23.6	73	148	40.2	107	372	16
17	33.6	36	73.1	22.2	70	134	38.6	85	324	17
18	33.1	39	77.6	21.2	66 S	119	31.4	65	231	18
19	32.3	41 S	78.0	22.7	71	138	27.7	77	184	19
20	32.8	46	89.0	22.0	72	137	26.1	71	164	20
21	33.2	45	90.2	21.8	71	134	24.8	72	154	21
22	32.6	47	82.8	22.8	73 S	144	23.9	78 S	157	22
23	33.5	53	108	22.8	71	140	21.6	65	103	23
24	33.1	58	113	21.8	73	138	20.0	64	83.3	24
25	32.4	60 S	118	20.4	73	129	18.8	64 S	87.7	25
26	32.6	60	97.6	19.0	75 S	123	18.4	64	86.6	26
27	32.4	45 S	87.1	17.7	72	110	18.1	63	82.8	27
28	32.2	48	88.2	16.7	66	86.2	17.6	63	81.5	28
29	33.4	45 S	87.1	16.2	62	86.8	17.6	63	80.6	29
30	32.8	42	82.7	16.7	67	77.3	18.2	63 S	83.3	30
31				16.0	66 S	72.6	18.6	64	91.4	31
TOTAL	787.4		2 932.8	680.4		3 808.6	683.3		4 388.8	TOTAL

A - MANUAL GAUGE B - ICE CONDITIONS S - SAMPLE(S) COLLECTED THIS DAY

MANITOBA

ASSINIBOINE RIVER NEAR HOLLAND - STATION NO. 05MH005

SUSPENDED SEDIMENT FOR 1987

DAY	SEP DAILY DISCHARGE (m^3/s)	SEP MEAN CONCENTRATION (mg/L)	SEP DAILY LOAD (t)	OCT DAILY DISCHARGE (m^3/s)	OCT MEAN CONCENTRATION (mg/L)	OCT DAILY LOAD (t)	NOV DAILY DISCHARGE (m^3/s)	NOV MEAN CONCENTRATION (mg/L)	NOV DAILY LOAD (t)	DAY
1	20.8	54	97.5	24.4	13	27.4	18.3	14	22.1	1
2	21.8	57	108	25.4	30	65.8	20.0	15	25.8	2
3	21.8	60	112	26.5	53	123	21.3	25	46.0	3
4	21.8	62	117	26.7	52	120	21.3	38	68.3	4
5	21.8	63 S	118	26.4	44	100	21.7	37 S	69.4	5
6	21.4	54	99.8	26.4	37 S	84.4	22.0	38	68.4	6
7	20.5	41	72.8	26.7	33	73.3	21.7	38	67.6	7
8	18.7	38	68.2	26.2	30	65.3	21.4	38	68.6	8
9	17.2	34 S	60.5	24.3	28	60.8	21.3	38	68.3	9
10	16.0	33	46.6	23.6	26	57.6	21.4	38	68.8	10
11	15.1	32	41.7	22.8	25	48.5	20.8	38	67.3	11
12	15.2	32	42.0	21.0	22	38.9	20.1	37	64.3	12
13	14.5	31	38.6	20.1	20	34.7	20.5	38	62.0	13
14	13.8	31	37.2	19.6	17	28.8	20.9	36	63.2	14
15	13.7	30	36.6	19.4	17	28.5	21.1	33	60.2	15
16	13.3	28	33.3	19.0	16	26.3	20.5	34	60.2	16
17	14.1	28	35.3	17.9	17	26.3	21.3	35	64.4	17
18	17.6	35 S	69.3	17.8	16	27.7	22.0	38	72.2	18
19	18.6	27	38.2	17.4	17	26.6	20.8	61	81.7	19
20	18.5	26	35.8	17.4	17	26.6	14.8	82	106	20
21	18.8	24	33.0	18.5	16 S	25.6	8.57	74	54.8	21
22	18.5	25	33.5	18.8	13	21.2	14.8	60	76.7	22
23	18.2	24 S	31.6	18.8	13	21.2	24.6	64	115	23
24	18.5	22	29.5	18.7	13	21.0	23.7	44	90.1	24
25	18.0	19	26.3	18.4	14	22.3	21.1	34	62.0	25
26	17.0	18	23.5	18.2	14	22.0	22.1	28	53.5	26
27	18.1	14	21.6	18.1	13	20.3	21.3	27	49.7	27
28	20.0	12	20.7	17.8	13	20.1	21.4 B	28	48.1	28
29	20.8	8 S	14.4	17.8	12	18.8	21.0 B	28	46.4	29
30	22.8	9	17.7	17.2	13	19.3	20.8 B	24	42.7	30
31				17.3	13	19.4				31
TOTAL	528.8		1 527.1	647.7		1 321.8	611.87		1 913.8	TOTAL

ASSINIBOINE RIVER NEAR HOLLAND - STATION NO. 05MH005

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1987

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m³/s)		SINGLE SAMPLING VERTICAL (m)		TYPE OF SAMPLER	INSTANT. CONCENT. (mg/L)	DISSOLVED SOLIDS (mg/L)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	PERCENT SAND	SILT	CLAY
MAR 10	10:30	0.5	18.9	B	40.0	K	DH48	18	618														
MAR 28	09:00	0.5	47.8	B	WELB	K	DIP	30	381														
APR 06	17:00	2.0	373	B	MID		DH59	1350	285	14	17	30	41	60	72	77	92	99	100		28	55	17
APR 07	10:00	3.0	334	B	MID		DH59	1110															
APR 07	19:00	3.0	327	B	MID		DH59	980															
APR 08	10:30	4.0	320		MID		DH59	785															
APR 08	19:30	5.0	323		MID		DH59	777															
APR 09	09:30	5.0	320		MID		DH59	682	321														
APR 09	10:10	5.0	45.7		88.0	M	DH59	647	302	17	24	42	54	70	80	87	97	100			20	55	24
APR 09	10:15	5.0	55.0		72.0	M	DH59	788	300	14	20	34	43	58	68	75	91	99	100		32	48	20
APR 09	10:20	5.0	73.3		56.0	M	DH59	788	307	11	16	34	38	57	64	70	89	99	100		36	48	16
APR 09	10:25	5.0	82.2		40.0	M	DH59	816	308	16	22	40	54	72	82	89	97	100			18	80	22
APR 09	10:30	5.0	84.1		24.0	M	DH59	584	284	18	26	39	53	72	83	93	99	100			17	58	25
APR 09	12:25	5.0	321		MID		DH59	701	301	13	23	36	49	65	75	80	94	100			25	52	23
APR 10	10:00	4.0	307		MID		DH59	676	321														
APR 10	19:30	4.0	311		MID		DH59	616															
APR 11	08:30	3.0	318		MID		DH59	614															
APR 12	19:00	5.0	324		MID		DH59	823															
APR 13	10:30	5.0	321		MID		DH59	589															
APR 13	19:00	5.0	321		MID		DH59	575															
APR 14	10:00	6.0	315		MID		DH59	867	287	20	28	44	55	68	77	81	93	100			23	51	26
APR 14	13:20	7.0	44.0		88.0	M	DH59	568	285	20	35	48	59	68	74	78	90	98	100		28	38	35
APR 14	13:25	7.0	53.4		72.0	M	DH59	586	293	25	33	51	59	69	75	78	91	99	100		28	42	33
APR 14	13:30	7.0	71.3		56.0	M	DH59	727	278	18	28	41	48	58	62	68	88	99	100		38	38	28
APR 14	13:35	7.0	81.5		40.0	M	DH59	510	281	27	36	55	67	75	84	88	97	100			18	48	36
APR 14	13:40	7.0	83.0		24.0	M	DH59	484	272	28	41	62	72	86	94	96	99	100			3	63	41
APR 14	14:00	7.0	313		MID		DH59	631	280	23	33	44	57	66	72	76	93	99	100		28	39	33
APR 14	19:30	7.0	309		MID		DH59	623															
APR 15	09:00	7.0	296		MID		DH59	593															
APR 15	19:00	8.0	285		MID		DH59	563															
APR 16	08:00	8.0	264		MID		DH59	484															
APR 17	10:00	10.0	235		MID		DH59	408															
APR 20	08:00	10.0	183		MID		DH59	306															
APR 20	19:00	11.0	176		MID		DH59	303															
APR 21	08:00	10.0	167		MID		DH59	288	307														
APR 21	08:30	10.0	17.8		92.0	M	DH59	204	322														
APR 21	08:35	10.0	34.5		72.0	M	DH59	239	294														
APR 21	08:40	10.0	38.8		56.0	M	DH59	285	315														
APR 21	08:45	10.0	43.7		40.0	M	DH59	226	307														
APR 21	08:50	10.0	32.1		24.0	M	DH59	206	312														
APR 21	10:15	10.0	167		MID		DH59	259	317														
APR 21	18:30	12.0	162		MID		DH59	276	318														
APR 22	08:00	10.0	155		MID		DH59	227															
APR 22	20:00	12.0	152		MID		DH59	240															
APR 23	08:00	10.0	147		MID		DH59	218															
APR 24	08:00	11.0	141		MID		DH59	204															
APR 24	20:00	11.0	138		MID		DH59	176															
APR 24	20:01	11.0	138		MID		DH59	188															
APR 25	08:00	11.0	134		MID		DH59	186															
APR 25	20:00	12.0	132		MID		DH59	177															
APR 26	08:00	12.0	128		MID		DH59	163															
APR 27	08:00	11.0	126		MID		DH59	169	180														
APR 27	20:00	13.0	123		MID		DH59	172															
APR 28	08:30	13.0	119		MID		DH59	152															
APR 28	20:30	14.0	117		MID		DH59	153															
APR 29	08:30	12.0	116		MID		DH59	177															
APR 29	21:00	14.0	113		MID		DH59	130															
APR 30	08:00	12.0	111		MID		DH59	130															
APR 30	18:00	13.0	110		MID		DH59	128															
MAY 01	08:00	12.0	107		MID		DH59	135															
MAY 01	20:00	14.0	106		MID		DH59	122															
MAY 02	08:00	12.0	105		MID		DH59	127															
MAY 02	18:30	15.0	103		MID		DH59	113															
MAY 03	13:00	15.0	102		MID		DH59	108															
MAY 04	08:00	13.0	98.9		MID		DH59	109	444														
MAY 05	08:30	15.0	97.5		MID		DH59	101															
MAY 06	08:30	15.0	93.6		MID		DH59	102															
MAY 07	08:30	15.0	90.5		MID		DH59	91															
MAY 08	08:00	15.0	86.8		MID		DH59	92															
MAY 09	10:00	15.0	83.3		MID		DH59	70															
MAY 10	10:00	15.0	79.2		MID		DH59	80															
MAY 11	13:00	15.0	75.3		MID		DH59	80	482														
MAY 12	08:30	15.0	72.4		MID		DH59	80															
MAY 13	09:00	17.0	68.6		MID		DH59	87															
MAY 14	08:30	16.0	65.3		MID		DH59	85															
MAY 15	08:30	17.0	61.6		MID		DH59	77															
MAY 16	13:00	17.0	58.4		MID		DH59	63															
MAY 17	08:00	15.0	57.1		MID		DH59	63															
MAY 18	14:00	15.0	54.8		MID		DH59	85	501														
MAY 19	08:30	14.0	50.8		MID		DH59	83															
MAY 20	08:30	15.0	48.2		MID		DH59	66															
MAY 20	11:00	17.0	7.47		80.0	M	DH59	40	510														
MAY 20	11:05	17.0	8.73		64.0	M	DH59	42	511														
MAY 20	11:10	17.0	8.61		52.0	M	DH59	44	473														
MAY 20	11:15	17.0	10.8		40.0	M	DH59	41	514														
MAY 20	11:20	17.0	8.32		28.0	M	DH59	38	519														
MAY 20	11:30	17.0	48.0		MID		DH59	48	511														
MAY 21	08:30	10.0	42.7		MID		DH59	52															
MAY 22	08:30	8.0	40.2		MID		DH59	48															
MAY 23	10:00	13.0	37.8		MID		DH59	37															
MAY 24	10:00	15.0	36.2		MID		DH59	35															
MAY 25	08:30	18.0	36.7		MID		DH59	38															
MAY 26	09:00	15.0	38.4		MID		DH59	38															
MAY 27	08:30	15.0	34.9		MID		DH59	37	534														
MAY 28	08:00	17.0	34.2		MID		DH59	38															
MAY 29	08:30	18.0	34.3		MID		DH59	46															
MAY 30	09:30	18.0	35.1		MID		DH59	48															
MAY 31	09:00	20.0	35.7		MID		DH59	65															
JUN 01	10:00	20.0	35.3		MID		DH59	63															
JUN 02	09:00	18.0	33.8		MID		DH59	68															
JUN 03	09:00	15.0	34.6		MID		DH59	83															
JUN 04	08:30	15.0	34.2		MID		DH59	53	548														

NOTE : SINGLE VERTICAL LOCATED AT MID (MID STREAM) FOR 1987

DISCHARGE SYMBOL(S): B - ICE CONDITIONS
VERTICAL SYMBOL(S): K - NOT AT REGULAR SINGLE SAMPLING VERTICAL, FROM LEFT BANK M - A SEDIMENT MEASUREMENT VERTICAL

CONTINUED

ASSINIBOINE RIVER NEAR HOLLAND - STATION NO. 05MH005 (CONTINUED)

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1987

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m³/s)	SINGLE SAMPLING VERTICAL (m)	TYPE OF SAMPLER	INSTANT. CONCENT. (mg/L)	DISSOLVED SOLIDS (mg/L)
JUN 05	08:30	16.0	32.7	MID	DH59	47	
JUN 08	18:00	22.0	28.3	MID	DH59	43	
JUN 09	18:00	23.0	26.3	MID	DH59	40	557
JUN 11	08:30	19.0	27.1	MID	DH59	34	
JUN 13	09:30	23.0	25.6	MID	DH59	36	
JUN 15	10:15	24.0	3.40	80.0 M	DH59	28	559
JUN 15	10:20	24.0	5.38	64.0 M	DH59	35	569
JUN 15	10:25	24.0	5.55	48.0 M	DH59	35	557
JUN 15	10:30	24.0	4.49	40.0 M	DH59	38	563
JUN 15	10:35	24.0	4.08	28.0 M	DH59	38	571
JUN 15	10:40	24.0	23.8	MID	DH59	37	583
JUN 19	11:00	24.0	22.3	MID	DH59	44	583
JUN 26	08:00	20.0	22.3	MID	DH59	68	
JUN 27	08:00	19.0	22.2	MID	DH59	48	585
JUN 28	08:00	18.0	22.2	MID	DH59	50	
JUL 02	17:00	23.0	22.8	MID	DH59	45	536
JUL 13	08:00	19.0	27.1	MID	DH59	79	
JUL 15	08:00	19.0	24.8	MID	DH59	83	
JUL 18	11:00	20.0	21.1	MID	DH59	71	523
JUL 22	10:40	19.0	5.03	72.0 M	DH59	72	513
JUL 22	10:45	19.0	4.69	56.0 M	DH59	76	512
JUL 22	10:50	19.0	3.72	48.0 M	DH59	80	516
JUL 22	10:55	19.0	4.84	40.0 M	DH59	72	
JUL 22	11:00	19.0	3.26	24.0 M	DH59	84	513
JUL 22	11:01	18.0	23.1	MID	DH59	80	511
JUL 22	11:15	19.0	23.1	MID	DH59	87	
JUL 28	10:00	23.0	19.0	MID	DH59	82	
JUL 31	09:00	22.0	14.8	MID	DH59	83	
AUG 04	08:30	18.0	17.1	MID	DH59	81	
AUG 22	10:00	17.0	24.1	MID	DH59	69	
AUG 25	10:15	17.0	1.97	84.0 M	DH59	50	
AUG 25	10:20	17.0	4.12	68.0 M	DH59	51	503
AUG 25	10:25	17.0	4.50	52.0 M	DH59	54	
AUG 25	10:30	17.0	4.85	40.0 M	DH59	58	513
AUG 25	10:35	17.0	3.40	28.0 M	DH59	56	514
AUG 26	11:00	17.0	18.8	MID	DH59	58	513
AUG 30	10:00	15.0	18.0	MID	DH59	56	488
SEP 05	09:00	18.0	21.7	MID	DH59	71	
SEP 09	10:00	15.0	17.1	MID	DH59	38	542
SEP 16	19:00	15.0	17.6	MID	DH59	36	466
SEP 23	09:00	15.0	15.1	MID	DH59	26	
SEP 28	09:00	12.0	20.4	MID	DH59	10	484
OCT 06	09:30	8.0	26.4	MID	DH59	41	474
OCT 21	09:30	2.0	3.28	80.0 M	DH59	14	586
OCT 21	09:35	2.0	4.84	60.0 M	DH59	17	589
OCT 21	09:40	2.0	4.22	48.0 M	DH59	17	587
OCT 21	09:45	2.0	3.81	36.0 M	DH59	17	573
OCT 21	09:50	2.0	2.08	24.0 M	DH59	18	588
OCT 21	10:15	2.0	18.0	MID	DH59	18	588
NOV 05	12:15	6.0	21.6	MID	DH59	42	508

NOTE : SINGLE VERTICAL LOCATED AT MID (MID STREAM) FOR 1987

VERTICAL SYMBOL(S): M - A SEDIMENT MEASUREMENT VERTICAL

POINT INTEGRATING PARTICLE-SIZE ANALYSIS OF SUSPENDED SEDIMENT FOR 1987

DATE	TIME	WATER TEMP. (°C)	PANEL DISCHARGE (m³/s)	SAMPLING VERTICAL (m)	DEPTH OF SAMPLE (m)	CONCENT. OF SAMPLE (mg/L)	DISSOLVED SOLIDS (mg/L)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	PERCENT SAND	SILT	CLAY
APR 08	11:15	5.0	84.1	24.0	2.84	837	310	17	30	43	57	76	85	93	98	100			15	85	30
APR 08	11:17	5.0	84.1	24.0	2.11	886	313	17	30	42	61	80	89	95	98	100			11	89	30
APR 08	11:19	5.0	84.1	24.0	1.33	888	303	30	33	53	83	82	91	97	100				9	91	33
APR 08	11:21	5.0	84.1	24.0	0.20	870	304	25	31	48	61	82	91	97	100				9	80	31
APR 08	11:25	5.0	82.2	40.0	3.26	787	302	18	21	36	44	51	88	78	92	95	100		31	48	21
APR 08	11:27	5.0	82.2	40.0	2.70	780	288	18	28	41	46	65	72	80	93	98	100		28	48	28
APR 08	11:29	5.0	82.2	40.0	2.02	880	304	25	30	47	65	73	83	88	98	100			17	53	30
APR 08	11:31	5.0	82.2	40.0	1.01	810	303	25	35	46	68	76	86	93	99	100			12	80	28
APR 08	11:33	5.0	82.2	40.0	0.20	887	306	26	32	47	69	78	88	95	99	100			11	87	32
APR 08	11:40	5.0	73.3	56.0	3.78	1150	301	13	18	35	31	43	48	64	83	88	100		51	34	15
APR 08	11:42	5.0	73.3	56.0	3.10	1040	298	13	18	38	30	42	50	67	86	98	100		50	36	15
APR 08	11:44	5.0	73.3	56.0	1.84	988	303	10	13	28	33	47	54	81	93	98	100		46	41	13
APR 08	11:46	5.0	73.3	56.0	1.16	786	306	16	23	38	48	62	71	78	92	98	100		29	48	23
APR 08	11:48	5.0	73.3	56.0	0.20	873	303	19	27	38	54	70	78	87	98	100			21	62	27
APR 08	11:55	5.0	55.0	72.0	2.70	1470	302	11	14	31	25	33	38	43	73	98	100		62	24	14
APR 08	11:57	5.0	55.0	72.0	2.24	1160	307	10	15	28	31	43	48	53	79	98	100		52	33	15
APR 08	11:59	5.0	55.0	72.0	1.40	726	308	15	22	38	46	62	71	78	84	100			39	48	22
APR 08	12:01	5.0	55.0	72.0	0.20	841	311	15	23	40	53	69	78	85	98	100			32	55	23
APR 08	12:05	5.0	45.7	88.0	2.50	881	308	14	19	34	40	52	61	68	88	98	100		39	42	19
APR 08	12:07	5.0	45.7	88.0	2.08	843	294	21	25	38	46	61	70	78	94	100			30	45	25
APR 08	12:09	5.0	45.7	88.0	1.30	690	304	19	26	44	54	71	80	87	97	100			20	64	26
APR 08	12:11	5.0	45.7	88.0	0.20	815	301	22	25	46	58	78	87	93	98	100			13	62	25

NOTE : SINGLE VERTICAL LOCATED AT MID (MID STREAM) FOR 1987

MANITOBA

ASSINIBOINE RIVER NEAR HOLLAND - STATION NO. 05MH005

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF OPERATION SUMMARY (JFMAMJJASOND)	TYPE OF SAMPLING	SAMPLED CONCENTRATION MAXIMUM (mg/L)				SAMPLED CONCENTRATION MINIMUM (mg/L)				SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)				SUSPENDED SEDIMENT LOAD TOTAL FOR PERIOD (TONNES)		SUMMARY - JAN-DEC MEAN LOAD (TONNES)	SUMMARY - JAN-DEC HISTORICAL MEAN LOAD (TONNES)	SUMMARY - JAN-DEC STANDARD ERROR OF MEAN %
1970	------CCCCC-	MANUAL	743	JUL 28			15	OCT 13			5 310	JUL 28			112 000		---	---	---
1971	---CCCCCC---	MANUAL	1 420	APR 17			28	SEP 17			22 800	APR 17			485 000		---	---	---
1972	---CCCCCCCC-	MANUAL	1 300	APR 18			25	AUG 30			25 300	APR 18			701 000		---	---	---
1973	---CCCCCC---	MANUAL	455	JUL 05			38	APR 30			1 070	JUL 05			38 000		---	---	---
1974	CCCCCCCCCCCC	MANUAL	1 580	APR 20			8	FEB 12			98 800	APR 20	*		1 320 000		3 810	3 810	---
1975	CCCCCCCCCCCC	MANUAL	1 340	APR 21			24	JAN 07			38 300	APR 30			1 340 000		3 870	3 840	0.8
1976	CCCCCCCCCCCC	MANUAL	1 310	APR 08			23	OCT 29			98 400	APR 12			1 810 000	*	5 230	4 170	12.7
1977	CCCCCCCCCCCC	MANUAL	128	MAY 22			14	MAR 14			529	JUL 13			44 700		122	3 150	34.2
1978	CCCCCCCCCCCC	MANUAL	848	APR 10			19	JAN 12			14 500	APR 09			189 000		463	2 820	38.9
1979	CCCCCCCCCCCC	MANUAL	2 870	APR 22			26	SEP 21			76 100	APR 23			1 830 000		4 470	2 930	28.7
1980	CCCCCCCCCCCC	MANUAL	580	APR 17			22	OCT 21			4 970	APR 17			73 700		201	2 840	32.7
1981	CCCCCCCCCCCC	MANUAL	300	AUG 27			20	JAN 05			483	AUG 26			33 100		80.7	2 230	35.1
1982	CCCCCCCCCCCC	MANUAL	1 780	APR 16			8	OCT 16	*		37 000	APR 16			314 000		851	2 080	34.0
1983	CCCCCCCCCCCC	MANUAL	1 250	APR 21			25	OCT 13			29 700	APR 11			575 000		1 580	2 030	31.2
1984	CCCCCCCCCCCC	MANUAL	228	JUL 10			11	SEP 26			989	APR 05			48 800		135	1 880	32.2
1985	CCCPCCCCCCCC	MANUAL	3 740	APR 30	*		17	NOV 27			12 100	APR 13			287 000		---	---	---
1986	CCCCCCCCCCCC	MANUAL	1 040	APR 8			11	SEP 24			21 000	APR 05			424 000		1 180	1 800	30.5
1987	--CCCCCCCCC-	MANUAL	1 350	APR 6			10	SEP 29			39 800	APR 05			306 000		---	---	---

MANUAL - MANUAL SAMPLING

C - COMPLETE MONTH P - PARTIAL MONTH * - EXTREME FOR PERIOD OF RECORD

BURNTWOOD RIVER BELOW FIRST RAPIDS - STATION NO. 05TG004

LOCATION: LAT 55 05 13 N LONG 099 50 05 W
DRAINAGE AREA: 883 km²
TYPE OF FLOW: REGULATED
TYPE OF GAUGE: MANUAL

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1987

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m³/s)	SINGLE VERTICAL SAMPLING (m)	TYPE OF SAMPLER	INSTANT. CONCENT. (mg/L)	DISSOLVED SOLIDS (mg/L)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	PERCENT SAND	PERCENT SILT	PERCENT CLAY
MAY 27	11:30	8.0		62.0	D74	33	89														

NOTE : SINGLE VERTICAL LOCATED AT 62.0 METRES FOR 1987

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF OPERATION SUMMARY (JFMAMJJASOND)	TYPE OF SAMPLING	SAMPLED CONCENTRATION MAXIMUM (mg/L)				SAMPLED CONCENTRATION MINIMUM (mg/L)				SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)				SUSPENDED SEDIMENT LOAD TOTAL FOR PERIOD (TONNES)		SUMMARY : MEAN LOAD (TONNES)	SUMMARY : HISTORICAL MEAN LOAD (TONNES)	SUMMARY : STANDARD ERROR OF MEAN %
1978	----PPPP----	MANUAL	47	JUN 28	*		29	AUG 28			---	---			---		---	---	---
1979	------PP----	MANUAL	38	JUL 04			33	AUG 30			---	---			---		---	---	---
1984	-----PP-P---	MANUAL	46	JUL 18			28	SEP 26	*		---	---			---		---	---	---
1987	----P-------	MANUAL	33	MAY 27			33	MAY 27			---	---			---		---	---	---

MANUAL - MANUAL SAMPLING

P - PARTIAL MONTH * - EXTREME FOR PERIOD OF RECORD

BURNTWOOD RIVER NEAR THOMPSON - STATION NO. 05TC001

LOCATION: LAT 55 44 40 N LONG 097 53 30 W
DRAINAGE AREA: 18 500 km²
TYPE OF FLOW: REGULATED SINCE 1973
TYPE OF GAUGE: RECORDING

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1987

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m³/s)	SINGLE SAMPLING VERTICAL (m)	TYPE OF SAMPLER	INSTANT. CONCENT. (mg/L)	DISSOLVED SOLIDS (mg/L)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	PERCENT SAND	PERCENT SILT	PERCENT CLAY
MAY 05	12:40	4.5	929	82.0	D74	20	90														
MAY 05	12:51	4.5	148	48.5 M	D74	19	86														
MAY 05	12:57	4.5	214	76.5 M	D74	22	91														
MAY 05	13:08	4.5	208	94.5 M	D74	21	92														
MAY 05	13:13	4.5	139	117 M	D74	21	87														
MAY 05	13:17	4.5	221	140 M	D74	21	90														
JUL 15	09:57	12.0	247	136 M	D74	27	86														
JUL 15	10:03	12.0	211	108 M	D74	24	87														
JUL 15	10:08	12.0	1020	82.0	D74	25	87														
JUL 15	10:12	12.0	189	61.0 M	D74	25	86														
JUL 15	10:18	12.0	232	73.0 M	D74	26	91														
JUL 15	10:34	12.0	138	46.0 M	D74	28	91														

NOTE : SINGLE VERTICAL IS UNDETERMINED FOR 1987

VERTICAL SYMBOL(S): M - A SEDIMENT MEASUREMENT VERTICAL

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF OPERATION SUMMARY (JFMAMJJASOND)	TYPE OF SAMPLING	SAMPLED CONCENTRATION MAXIMUM (mg/L)		MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		TOTAL FOR PERIOD (TONNES)	SUMMARY MEAN LOAD (TONNES)	HISTORICAL MEAN LOAD (TONNES)	STANDARD ERROR OF MEAN %
1970	--CCCCCCC---	AUTO	40 JUL 10		7 MAR 18		1 370 JUL 09 *		84 400	---	---	---
1971	-CCCCCCCC---	AUTO	28 JUL 15		7 MAY 26		712 JUL 13		65 100	---	---	---
1972	----CCCCC---	AUTO	58 SEP 22		5 AUG 23	*	873 JUN 18		54 100	---	---	---
1973	----CCCC----	AUTO	33 AUG 08		9 MAY 26		489 MAY 22		31 300	---	---	---
1974	----CCCC----	AUTO	59 JUL 28		11 MAY 07		722 MAY 22		42 000	---	---	---
1975	----CCCCC---	AUTO	75 MAY 26	*	23 JUN 04		920 MAY 26		52 400	---	---	---
1976	----CCCCC---	AUTO	69 JUN 21		27 MAY 28		1 370 JUL 18		95 800	* ---	---	---
1977	----PPPPP---	MANUAL	44 AUG 30		18 MAY 24		--- ---		---	---	---	---
1978	----PP--P---	MANUAL	28 MAY 28		21 SEP 12		--- ---		---	---	---	---
1979	-----PP-----	MANUAL	35 JUN 05		28 JUL 17		--- ---		---	---	---	---
1981	-----PP-----	MANUAL	27 JUL 27		16 JUN 15		--- ---		---	---	---	---
1984	----P-PP----	MANUAL	44 MAY 15		21 MAY 15		--- ---		---	---	---	---
1987	----P-P-----	MANUAL	28 JUL 15		19 MAY 6		--- ---		---	---	---	---

AUTO - AUTOMATIC SAMPLING
MANUAL - MANUAL SAMPLING
C - COMPLETE MONTH
P - PARTIAL MONTH
* - EXTREME FOR PERIOD OF RECORD

MANITOBA

EDWARDS CREEK DRAIN BELOW JACKFISH CREEK - STATION NO. 05LJ067

SUSPENDED SEDIMENT FOR 1987

LOCATION: LAT 51 08 30 N LONG 99 55 20 W
DRAINAGE AREA: 311 km²
TYPE OF FLOW: REGULATED
TYPE OF GAUGE: RECORDING

TOTAL SUSPENDED SEDIMENT LOAD 5 890 TONNES FOR THE PERIOD MAR 01 TO NOV 03

REMARKS:

DAY	MAR DAILY DISCHARGE (m³/s)	MAR MEAN CONCENTRATION (mg/L)	MAR DAILY LOAD (t)	APR DAILY DISCHARGE (m³/s)	APR MEAN CONCENTRATION (mg/L)	APR DAILY LOAD (t)	MAY DAILY DISCHARGE (m³/s)	MAY MEAN CONCENTRATION (mg/L)	MAY DAILY LOAD (t)	DAY
1	0.002 B	3	0	1.24 B	37	3.98	0.359	4 S	0.12	1
2	0.003 B	3	0	1.10 B	46	4.37	0.328	4 S	0.11	2
3	0.004 B	3	0	2.42 B	85 S	17.8	0.276	6 S	0.14	3
4	0.004 B	3	0	4.20 B	127 S	46.1	0.279	5 S	0.12	4
5	0.005 B	3	0	3.87 B	173 S	57.6	0.301	10 S	0.26	5
6	0.045 B	4	0.02	4.40 B	354 S	135	0.281	12 S	0.27	6
7	0.040 B	4	0.03	7.85 B	864 S	531	0.228	9 S	0.18	7
8	0.033 B	4	0.02	8.38	1 770 S	1 430	0.221	11 S	0.21	8
9	0.040 B	5	0.03	8.80	1 810 S	1 390	0.213	7 S	0.13	9
10	0.050 B	7	0.03	7.98	1 400 S	982	0.200	6 S	0.10	10
11	0.080 B	7	0.04	4.78	520 S	215	0.203	11 S	0.19	11
12	0.090 B	10	0.08	3.88	440 S	151	0.178	8 S	0.12	12
13	0.210 B	12	0.22	3.86	384 S	121	0.185	8 S	0.08	13
14	0.160 B	12	0.17	3.22	368 S	102	0.185	7 S	0.10	14
15	0.150 B	11	0.14	3.10	413 S	111	0.140	28 S	0.34	15
16	0.130 B	10	0.11	2.87	367 S	88.0	0.128	44 S	0.49	16
17	0.125 B	8	0.09	2.41	258 S	53.8	0.117	34	0.34	17
18	0.120 B	7	0.07	1.92	180 S	31.5	0.128	12 S	0.13	18
19	0.280 B	10	0.24	1.60	127 S	17.6	0.125	20 S	0.22	19
20	0.380 B	23	0.76	1.28	87 S	9.47	0.120	38	0.37	20
21	0.510 B	42 S	1.88	0.939	55 S	4.41	0.118	17 S	0.17	21
22	0.580 B	40 S	2.00	0.826	33 S	2.36	0.113	6	0.06	22
23	0.880 B	28 S	2.08	0.676	35 S	2.04	0.084	7	0.05	23
24	3.09 B	24 S	6.41	0.619	17 S	0.91	0.087	10	0.08	24
25	4.52 B	27 S	10.5	0.611	13 S	0.69	0.078	23 S	0.16	25
26	4.52 B	48 S	19.6	0.564	25 S	1.22	0.078	57 S	0.38	26
27	1.85 B	36	5.75	0.498	11 S	0.47	0.103	41	0.36	27
28	1.57 B	22	2.88	0.438	11 S	0.42	0.148	11 S	0.14	28
29	1.37 B	22	2.80	0.406	9 S	0.32	0.174	3	0.05	29
30	1.30 B	24	2.70	0.372	6	0.19	0.134	8	0.07	30
31	1.21 B	30	3.14				0.090	8 S	0.06	31
TOTAL	23.419		81.69	85.845		5 589.53	5.344		5.82	TOTAL

DAY	JUN DAILY DISCHARGE (m³/s)	JUN MEAN CONCENTRATION (mg/L)	JUN DAILY LOAD (t)	JUL DAILY DISCHARGE (m³/s)	JUL MEAN CONCENTRATION (mg/L)	JUL DAILY LOAD (t)	AUG DAILY DISCHARGE (m³/s)	AUG MEAN CONCENTRATION (mg/L)	AUG DAILY LOAD (t)	DAY
1	0.074	8	0.05	0.018	7	0.01	0.002	8	0	1
2	0.063	8 S	0.03	0.026	8	0.02	0	0	0	2
3	0.066	7	0.04	0.027	8	0.02	0	0	0	3
4	0.073	8 S	0.04	0.022	11	0.02	0	0	0	4
5	0.074	8	0.05	0.022	21	0.04	0	0 S	0	5
6	0.061	8 S	0.04	0.047	44	0.18	0.008	31	0.02	6
7	0.044	10	0.04	0.041	48	0.17	0.012	72	0.07	7
8	0.032	25	0.07	0.022	38	0.07	0.021	38	0.07	8
9	0.026	28 S	0.07	0.020	33	0.06	0.017	22	0.03	9
10	0.038	17	0.06	0.018	31	0.05	0.013	17 S	0.02	10
11	0.037	7 S	0.02	0.031	35	0.08	0.020	28	0.04	11
12	0.017	8	0.01	0.073	85	0.41	0.027	32	0.07	12
13	0.011	15 S	0.01	0.047	47	0.18	0.018	26	0.04	13
14	0.003	9 S	0	0.024 A	27 S	0.06	0.026	17 S	0.04	14
15	0	2 S	0	0.017 E	18	0.02	0.026	11 S	0.02	15
16	0	4	0	0.014 E	11	0.01	0.038	20	0.07	16
17	0.040	35 S	0.12	0.013 A	8 S	0.01	0.064	23	0.12	17
18	0.078	83	0.55	0.007 E	10	0.01	0.068	18	0.11	18
19	0.020	63 S	0.11	0.028 A	17 S	0.04	0.042	11	0.04	19
20	0.014	27	0.03	0.038 E	26	0.08	0.025	8 S	0.01	20
21	0.014	8 S	0.01	0.024 A	32 S	0.07	0.022	7	0.01	21
22	0.028	8	0.02	0.018	34	0.05	0.018	8	0.01	22
23	0.061	8 S	0.05	0.023	34	0.07	0.014	8 S	0.01	23
24	0.063	7 S	0.04	0.025	37	0.08	0.014	8	0.01	24
25	0.031	3	0.01	0.017	38	0.06	0.009	8 S	0.01	25
26	0.027	4	0.01	0.033	52	0.15	0.005	8	0	26
27	0.028	6 S	0.01	0.012	38 S	0.04	0.012	10 S	0.01	27
28	0.025	4	0.01	0.007	34	0.02	0.004	10	0	28
29	0.023	5 S	0.01	0.007	28 S	0.02	0.004	8	0	29
30	0.020	5	0.01	0.007	21	0.01	0.004	10	0	30
31				0.006	15	0.01	0.003	10 S	0	31
TOTAL	1.082		1.52	0.736		2.14	0.535		0.83	TOTAL

A - MANUAL GAUGE B - ICE CONDITIONS E - ESTIMATED S - SAMPLE(S) COLLECTED THIS DAY

EDWARDS CREEK DRAIN BELOW JACKFISH CREEK - STATION NO. 05LJ047

SUSPENDED SEDIMENT FOR 1987

DAY	SEP			OCT			NOV			DAY
	DAILY DISCHARGE (m^3/s)	MEAN CONCENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m^3/s)	MEAN CONCENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m^3/s)	MEAN CONCENTRATION (mg/L)	DAILY LOAD (t)	
1	0.002	11	0	0.020	7	0.01		3		
2	0.006	8 S	0	0.018	6	0.01		3 S		1
3	0.009	5	0	0.018	7	0.01		3		2
4	0.005	4	0	0.019	11 S	0.02				3
5	0	4	0	0.032	12	0.03				4
										5
6	0	2	0	0.238	15	0.31				
7	0	0	0	0.187	8 S	0.13				6
8	0	0 S	0	0.227	6	0.12				7
9	0	1	0	0.196	6	0.10				8
10	0	0	0	0.161	6	0.09				9
										10
11	0.004	6	0	0.135	6	0.07				
12	0.008	8	0.01	0.130	6 S	0.07				11
13	0.005	8 S	0	0.170	6	0.09				12
14	0.002	8	0	0.215	5	0.09				13
15	0	0	0	0.209	5 S	0.09				14
										15
16	0.003	11 S	0	0.158	5	0.07				
17	0.170	23 S	0.34	0.142	5	0.08				16
18	0.710	133 S	8.15	0.108	5	0.05				17
19	1.18	131 S	13.0	0.109	5	0.05				18
20	0.435	83	1.59	0.092	4	0.03				19
										20
21	0.238	31	0.64	0.091	3 S	0.02				
22	0.100	22	0.18	0.082	3	0.02				21
23	0.044	16	0.07	0.080	4	0.03				22
24	0.108	14	0.13	0.092	4	0.03				23
25	0.074	12	0.08	0.085	5 S	0.04				24
										25
26	0.027	11	0.03	0.122	8	0.08				
27	0.024	8	0.02	0.347	14	0.42				26
28	0.023	8 S	0.02	0.324	9 S	0.25				27
29	0.020	6	0.01	0.228	7	0.14				28
30	0.021	6 S	0.01	0.198	5	0.08				29
31				0.190	4	0.07				30
										31
TOTAL	3.188		24.70	4.480		2.89				TOTAL

MANITOBA

EDWARDS CREEK DRAIN BELOW JACKFISH CREEK - STATION NO. 05LJ047

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1987

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m³/s)		SINGLE SAMPLING VERTICAL (m)		TYPE OF SAMPLER	INSTANT. CONCENT. (mg/L)	DISSOLVED SOLIDS (mg/L)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	PERCENT SAND	SILT	CLAY
MAR 21	10:30	1.0	0.518	W	33.0		DH59	42	183														
MAR 21	17:00	1.0	0.518	W	33.0		DH59	46															
MAR 22	10:40	1.0	0.580	W	33.0		DH59	42	183														
MAR 22	16:35	1.0	0.580	W	33.0		DH59	36															
MAR 23	09:30	0.5	0.660	W	33.0		DH59	27															
MAR 23	17:05	1.0	0.660	W	33.0		DH59	31															
MAR 23	18:15	1.0	0.660	W	33.0		DH59	26															
MAR 24	10:20	1.0	3.09	W	33.0		DH59	22															
MAR 24	17:45	1.0	3.09	W	33.0		DH59	27															
MAR 25	07:50	1.0	4.52	W	33.0		DH59	18															
MAR 25	17:15	1.0	4.52	W	33.0		DH59	35															
MAR 26	07:30	1.0	4.62	W	WELB	X	DIP	15															
MAR 26	13:00	1.5	4.62	W	33.0		DH59	47	230														
APR 03	16:30	4.0	2.42	W	WELB	X	DIP	96															
APR 04	09:45	1.0	4.20	W	WELB	X	DIP	88															
APR 04	17:10	2.0	4.20	W	WELB	X	DIP	176															
APR 05	08:30	1.0	3.87	W	33.0		DH59	83															
APR 05	20:10	3.0	3.87	W	33.0		DH59	400															
APR 06	09:00	1.0	3.06	B	33.0		DH59	132															
APR 06	16:50	6.0	4.85	B	33.0		DH59	387	288														
APR 06	18:25	3.0	5.36	B	33.0		DH59	488															
APR 07	10:30	4.0	5.80	B	33.0		DH59	688															
APR 07	16:40	6.0	7.62	B	33.0		DH59	909	316	18	40	76	88	96	97	99	100			3	57	40
APR 08	10:50	5.0	8.73		33.0		DH59	1800	298	21	30	72	87	97	98	99	100			2	68	30
APR 08	17:50	5.0	8.38		33.0		DH59	1430	208	23	48	76	91	97	98	99	100			2	48	48
APR 08	18:30	5.0	2.03		34.0	M	DH59	2070	280	36	58	73	85	96	98	100				2	39	58
APR 08	18:35	5.0	3.32		27.5	M	DH59	2070	248	19	41	64	83	97	99	100				1	58	41
APR 08	18:45	5.0	3.78		31.0	M	DH59	2070	248	16	17	75	85	95	99	100				1	82	17
APR 08	18:55	5.0	2.46		35.0	M	DH59	1830	246	17	34	66	84	96	99	100				1	65	34
APR 08	19:00	5.0	2.44		38.0	M	DH59	1840	254	14	34	66	81	95	98	99	100			2	64	34
APR 08	19:10	5.0	8.40		33.0		DH59	1810	248	18	38	80	92	94	98	99	100			2	80	38
APR 09	08:30	3.0	9.18		33.0		DH59	1830	281	19	39	86	93	98	99	100				1	80	39
APR 09	08:31	3.0	9.18		33.0		DH59	1820	234														
APR 09	17:30	7.0	7.89		33.0		DH59	1630	243														
APR 09	17:31	7.0	7.88		33.0		DH59	1630	247														
APR 10	17:00	1.0	7.07		WELB	X	DIP	1170	245														
APR 10	17:01	1.0	7.07		WELB	X	DIP	1160	237														
APR 11	11:00	1.0	4.55		33.0		DH59	489	239														
APR 11	16:30	4.0	4.42		33.0		DH59	501															
APR 12	09:30	3.0	4.14		33.0		DH59	478															
APR 12	19:00	2.0	3.61		33.0		DH59	411															
APR 13	10:45	3.0	3.68		33.0		DH59	412															
APR 13	17:50	9.0	3.43		33.0		DH59	348															
APR 14	09:50	6.0	3.38		33.0		DH59	441	320	23	45	72	83	96	97	97	100			3	52	45
APR 14	17:45	10.0	2.81		33.0		DH59	317	306														
APR 15	09:45	6.0	3.15		33.0		DH59	470	278	27	48	73	91	97	98	99	100			2	50	48
APR 15	17:20	12.0	2.88		33.0		DH59	372															
APR 16	07:10	8.0	3.05		33.0		DH59	383															
APR 16	17:40	13.0	2.73		33.0		DH59	312															
APR 17	12:20	11.0	3.43		33.0		DH59	270															
APR 17	18:50	14.0	2.20		33.0		DH59	227															
APR 18	08:15	8.0	1.87		33.0		DH59	204															
APR 18	18:10	14.0	1.80		33.0		DH59	172															
APR 19	18:00	12.0	1.80		33.0		DH59	119	325														
APR 20	10:20	8.0	1.32		33.0		DH59	82															
APR 20	17:05	9.0	1.14		33.0		DH59	80															
APR 21	10:35	7.0	0.843		33.0		DH59	51															
APR 21	17:05	12.0	0.686		33.0		DH59	68															
APR 22	09:55	10.0	0.852		33.0		DH59	32															
APR 22	18:20	8.0	0.788		33.0		DH59	31															
APR 23	08:50	8.0	0.879		33.0		DH59	40															
APR 24	09:50	8.0	0.821		33.0		DH59	18															
APR 24	17:10	8.0	0.898		33.0		DH59	14															
APR 25	09:00	7.0	0.813		33.0		DH59	11															
APR 26	17:30	12.0	0.844		33.0		DH59	28	386														
APR 27	09:00	8.0	0.508		33.0		DH59	10															
APR 28	08:30	11.0	0.450		33.0		DH59	10															
APR 28	17:00	16.0	0.438		33.0		DH59	15															
APR 29	09:20	11.0	0.448		33.0		DH59	8															
MAY 01	12:00	12.0	0.358		33.0		DH59	6															
MAY 02	17:00	14.0	0.306		33.0		DH59	4															
MAY 03	17:45	13.0	0.261		33.0		DH59	8	448														
MAY 04	09:00	11.0	0.270		33.0		DH59	5															
MAY 05	12:15	17.0	0.297		33.0		DH59	10															
MAY 06	17:45	16.0	0.288		33.0		DH59	13															
MAY 07	18:45	16.0	0.221		33.0		DH59	8															
MAY 08	19:00	20.0	0.220		33.0		DH59	11															
MAY 09	18:30	15.0	0.211		33.0		DH59	8															
MAY 10	09:20	12.0	0.188		33.0		DH59	5	486														
MAY 11	13:15	18.0	0.188		33.0		DH59	12															
MAY 12	15:00	23.0	0.188		33.0		DH59	10															
MAY 13	10:00	15.0	0.161		33.0		DH59	6															
MAY 14	13:00	18.0	0.157		33.0		DH59	6															
MAY 15	19:10	21.0	0.138		33.0		DH59	43															
MAY 16	10:10	12.0	0.120		33.0		DH59	42	408														
MAY 16	18:10	15.0	0.121		33.0		DH59	6															
MAY 18	18:30	17.0	0.123		33.0		DH59	33															
MAY 21	18:20	13.0	0.118		33.0		DH59	6	477														
MAY 25	18:15	16.0	0.073		33.0		DH59	28															
MAY 26	18:50	16.0	0.088		33.0		DH59	84															
MAY 28	18:15	18.0	0.167		33.0		DH59	7	483														
MAY 31	09:35	21.0	0.100		33.0		DH59	8															
JUN 02	18:10	11.0	0.070		33.0		DH59	8															
JUN 04	18:00	22.0	0.073		33.0		DH59	8	486														
JUN 06	20:15	25.0	0.048		33.0		DH59	8															
JUN 09	18:00	23.0	0.028		33.0		DH59	30															
JUN 11	08:30	18.0	0.048		33.0		DH59	7	490														
JUN 13	19:15	28.0	0.008		33.0		DH59	18															
JUN 14	18:45	28.0	0.001		33.0		DH59	7															
JUN 16	11:00	24.0	0.		33.0		DH59	8															
JUN 17	12:00	23.0	0.008		33.0		DH59	18															
JUN 19	19:15	28.0	0.016		33.0		DH59	84	441														

NOTE : SINGLE VERTICAL LOCATED AT 33 METRES FOR 1987

DISCHARGE SYMBOL(S): B - ICE CONDITIONS W - DAILY MEAN; ICE CONDITIONS

VERTICAL SYMBOL(S): M - A SEDIMENT MEASUREMENT VERTICAL X - NOT AT REGULAR SINGLE SAMPLE VERTICAL

CONTINUED

EDWARDS CREEK DRAIN BELOW JACKFISH CREEK - STATION NO. 05LJ047 (CONTINUED)

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1987

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m^3/s)		SINGLE SAMPLING VERTICAL (m)	TYPE OF SAMPLER	INSTANT. CONCENT. (mg/L)	DISSOLVED SOLIDS (mg/L)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	PERCENT SAND	SILT	CLAY
JUN 21	19:30	28.0	0.017		33.0	DH59	6	525														
JUN 23	10:40	22.0	0.082		33.0	DH59	9															
JUN 24	18:45	20.0	0.080		33.0	DH59	5															
JUN 27	18:40	25.0	0.028		33.0	DH59	5															
JUN 28	20:15	22.0	0.021		33.0	DH59	5															
JUL 14	12:15	21.0	0.025		33.0	DH59	5	444														
JUL 17	18:30	23.0	0.013	V	33.0	DH59	28	400														
JUL 19	15:30	20.0	0.028	V	33.0	DH59	8															
JUL 21	14:30	20.0	0.024	V	33.0	DH59	18	505														
JUL 21	15:30	20.0	0.024	V	33.0	DH59	35															
JUL 27	20:15	28.0	0.010		33.0	DH59	34															
JUL 28	19:15	26.0	0.005		33.0	DH59	35	438														
AUG 05	15:30	19.0	0.		33.0	DH59	26															
AUG 10	19:00	21.0	0.012		33.0	DH59	15	587														
AUG 14	15:30	16.0	0.021		33.0	DH59	15															
AUG 15	16:15	19.0	0.023		33.0	DH59	17	528														
AUG 20	19:30	17.0	0.021		33.0	DH59	11															
AUG 23	18:15	17.0	0.012		33.0	DH59	7															
AUG 25	18:00	18.0	0.007		33.0	DH59	8	477														
AUG 27	18:25	21.0	0.012		33.0	DH59	10															
AUG 31	12:00	17.0	0.003		33.0	DH59	8	505														
SEP 02	18:00	21.0	0.008		33.0	DH59	11															
SEP 08	18:30	15.0	0.		33.0	DH59	7	593														
SEP 13	17:00	18.0	0.004		33.0	DH59	11	738														
SEP 16	10:15	12.0	0.002		33.0	DH59	8															
SEP 17	10:15	15.0	0.342		33.0	DH59	11	658														
SEP 18	10:20	12.0	0.885		33.0	DH59	12															
SEP 19	18:45	18.0	0.786		33.0	DH59	133	385														
SEP 28	18:35	18.0	0.021		33.0	DH59	81	383														
SEP 30	16:20	12.0	0.020		33.0	DH59	8	383														
OCT 04	11:00	8.0	0.018		33.0	DH59	6															
OCT 07	18:00	10.0	0.184		33.0	DH59	13	441														
OCT 12	16:20	14.0	0.129		33.0	DH59	8															
OCT 15	16:20	9.0	0.181		33.0	DH59	8	441														
OCT 21	15:00	7.0	0.087		33.0	DH59	5	383														
OCT 25	16:00	10.0	0.088		33.0	DH59	3	388														
OCT 28	15:30	9.0	0.313		33.0	DH59	8															
NOV 02	18:00	9.0			33.0	DH59	8	371														
NOV 04	17:00	1.0			33.0	DH59	3	376														
							3															

NOTE : SINGLE VERTICAL LOCATED AT 33 METRES FOR 1987

DISCHARGE SYMBOL(S): V - DAILY MEAN; MANUAL GAUGE

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF OPERATION SUMMARY (JFMAMJJASOND)	TYPE OF SAMPLING	SAMPLED CONCENTRATION MAXIMUM (mg/L)			MINIMUM (mg/L)			SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)			TOTAL FOR PERIOD (TONNES)	SUMMARY - MAR-OCT MEAN LOAD (TONNES)	HISTORICAL MEAN LOAD (TONNES)	STANDARD ERROR OF MEAN %
1980	--CCCCCCCC--	MANUAL	858	APR 19		7	OCT 06		351	APR 19		1 810	6.85	6.85	---
1981	--CCCCCCCC--	MANUAL	1 920	JUN 15		3	JUL 25	*	995	JUN 15		8 080	24.8	15.7	58.1
1982	--CCCCCCCC--	MANUAL	1 720	APR 23		4	SEP 30		2 080	APR 23		9 780	38.8	23.7	40.8
1983	--CCCCCCCC--	MANUAL	2 630	MAY 14		3	APR 11		3 340	APR 25		21 200	58.7	38.6	43.4
1984	--CCCCCCCC--	MANUAL	2 140	MAY 11		4	MAR 28		740	MAY 11		4 490	18.3	38.2	38.6
1985	--CCCCCCCC--	MANUAL	1 700	APR 19		4	SEP 8		3 000	APR 20		16 100	73.8	41.7	31.4
1986	--CCCCCCCCP-	MANUAL	8 040	MAY 6	*	6	JUL 10		35 800	MAY 08	*	62 200	284	72.0	44.8
1987	--CCCCCCCCP-	MANUAL	2 070	APR 8		3	OCT 21		1 430	APR 08		5 690	33.2	85.8	43.4

MANUAL - MANUAL SAMPLING

C - COMPLETE MONTH P - PARTIAL MONTH * - EXTREME FOR PERIOD OF RECORD

MANITOBA

ODEI RIVER NEAR THOMPSON - STATION NO. 05TG003

SUSPENDED SEDIMENT FOR 1987

LOCATION: LAT 55 59 45 N LONG 97 21 23 W
DRAINAGE AREA: 8 130 km²
TYPE OF FLOW: NATURAL
TYPE OF GAUGE: RECORDING

TOTAL SUSPENDED SEDIMENT LOAD 42 100 TONNES FOR THE PERIOD APR 27 TO SEP 30

REMARKS:

DAY	APR DAILY DISCHARGE (m³/s)	APR MEAN CONCENTRATION (mg/L)	APR DAILY LOAD (t)	MAY DAILY DISCHARGE (m³/s)	MAY MEAN CONCENTRATION (mg/L)	MAY DAILY LOAD (t)	JUN DAILY DISCHARGE (m³/s)	JUN MEAN CONCENTRATION (mg/L)	JUN DAILY LOAD (t)	DAY
1	4.85 B			203	121	2 120	55.4	58 S	288	1
2	4.85 B			194	109	1 830	57.1	58 S	286	2
3	4.87 B			180	100	1 560	58.7	57 S	289	3
4	4.88 B			165	94	1 340	60.6	52 S	272	4
5	4.89 B			151	89	1 160	61.4	49	260	5
6	4.91 B			137	86	1 020	61.2	47	248	6
7	4.93 B			125	83	896	59.8	46	246	7
8	4.96 B			115	80	795	57.5	49	243	8
9	5.00 B			105	78	708	53.7	50	238	9
10	5.06 B			97.0	75	629	52.0	49	220	10
11	5.14 B			88.8	72	557	48.7	47	202	11
12	5.27 B			82.8	70	501	47.4	46	186	12
13	5.48 B			76.2	68	455	45.8	47	186	13
14	5.75 B			72.5	66	413	44.0	49	186	14
15	6.22 B			68.8	64	380	42.4	50	183	15
16	7.52 B			65.1	63	354	41.0	50	177	16
17	16.8			61.8	61	328	40.5	48	168	17
18	24.5			59.1	59	301	39.5	48	164	18
19	35.0			56.4	58	283	40.2	47	163	19
20	43.6			54.8	55	266	41.5	45	161	20
21	54.6			52.7	54	246	41.4	45	161	21
22	66.4			51.4	52	231	40.8	49	173	22
23	83.0			49.8	50	215	42.1	57	207	23
24	102			48.5	48	202	49.0	67	284	24
25	116			47.1	45	187	62.6	78	411	25
26	131			45.8	44	174	78.8	80	531	26
27	141 A	84 S	780	45.0	43 S	167	87.1	78	572	27
28	171 E	93 E	1 370	44.0	48	175	80.3	67	523	28
29	198 A	120 S	2 050	48.0	50 S	199	68.2	58	432	29
30	204	131	2 310	46.8	47 S	198	76.3	51	346	30
31				52.1	49	221				31
TOTAL	1 472.49		8 510	2 882.8		18 113	1 885.2		7 988	TOTAL

DAY	JUL DAILY DISCHARGE (m³/s)	JUL MEAN CONCENTRATION (mg/L)	JUL DAILY LOAD (t)	AUG DAILY DISCHARGE (m³/s)	AUG MEAN CONCENTRATION (mg/L)	AUG DAILY LOAD (t)	SEP DAILY DISCHARGE (m³/s)	SEP MEAN CONCENTRATION (mg/L)	SEP DAILY LOAD (t)	DAY
1	73.0	48	303	26.0	35	78.6	23.4	35 S	72.8	1
2	67.3	48	267	26.1	35 S	78.9	23.7	35	71.7	2
3	62.8	48	243	24.8	34	72.3	24.3	35 S	75.6	3
4	58.8	44	223	23.3	31 S	62.4	25.3	32 S	69.8	4
5	54.4	41	193	22.4	31	60.0	25.9	28	64.5	5
6	51.2	39	173	21.8	32 S	60.3	27.2	31 S	72.8	6
7	48.0	40	166	20.8	35 S	63.2	28.7	33	81.8	7
8	46.1	44	183	20.6	35	62.3	28.5	33 S	81.6	8
9	48.3	51	213	20.1	32 S	55.5	31.0	32	85.7	9
10	50.1	55	242	19.8	29	49.8	33.3	32 S	91.8	10
11	51.1	56	247	20.2	30 S	52.4	35.8	32 S	99.0	11
12	51.4	53	235	20.5	34	63.8	37.6	31	100	12
13	51.2	47	208	21.8	44 S	82.1	38.2	30 S	99.0	13
14	50.4 A	41 S	178	22.6	48	94.6	38.3	32	106	14
15	49.0	37	157	24.6	45	95.3	37.8	34 S	111	15
16	47.7	35 S	144	25.1	41	88.8	37.2	35	112	16
17	46.8	35 S	142	24.8	37	78.8	36.8	31 S	98.8	17
18	46.1	36	140	23.7	33 S	67.6	36.6	28 S	81.6	18
19	43.2	37 S	138	22.8	33	65.0	36.5	28	88.3	19
20	41.7	37	133	22.0	36 S	68.4	36.3	26 S	81.6	20
21	40.0	35 S	121	21.5	40 S	74.3	35.6	25	76.8	21
22	38.5	34 S	113	20.5	41	72.8	35.1	25	76.8	22
23	37.3	33 S	106	20.0	37 S	63.9	34.0	25	76.4	23
24	35.5	35 S	107	19.6	36	61.8	33.0	24	68.4	24
25	34.0	35	103	19.5	40 S	67.4	32.2	24	65.8	25
26	32.7	34 S	96.1	19.0	41	67.3	31.5	26	70.8	26
27	31.3	34	91.9	18.0	37 S	57.5	30.9	24	64.1	27
28	30.6	35 S	92.5	17.7	31 S	47.4	29.7	23	59.0	28
29	29.2	35	88.3	18.8	31	50.8	28.8	23	57.2	29
30	28.0	35 S	14.7	20.4	35 S	61.7	28.2	22	53.8	30
31	27.0	34 S	79.3	21.3	37	68.1				31
TOTAL	1 404.3		5 014.8	669.0		2 049.3	983.2		2 427.8	TOTAL

A - MANUAL GAUGE B - ICE CONDITIONS E - ESTIMATED S - SAMPLE(S) COLLECTED THIS DAY

ODEI RIVER NEAR THOMPSON - STATION NO. 05TC003

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1987

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m³/s)	SINGLE SAMPLING VERTICAL (m)	TYPE OF SAMPLER	INSTANT. CONCENT. (mg/L)	DISSOLVED SOLIDS (mg/L)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	PERCENT SAND	SILT	CLAY
APR 27	10:15		143 E	---	PUMP	57															
APR 28	11:31	5.0	38.3	14.0 M	DH59	124	108														
APR 28	11:36	5.0	42.3	25.0 M	DH59	134	103														
APR 28	11:37	5.0	193	32.0	DH59	122	97														
APR 28	11:46	5.0	38.2	38.5 M	DH59	116	103														
APR 28	11:58	5.0	34.9	49.0 M	DH59	126	88														
APR 28	12:03	5.0	39.7	62.0 M	DH59	111	100														
MAY 27	09:45		45.3	---	PUMP	43															
MAY 28	12:00		46.0	---	PUMP	52															
MAY 30	12:00		46.7	---	PUMP	47															
JUN 01	12:00		55.3	---	PUMP	58															
JUN 02	12:00		56.9	---	PUMP	58															
JUN 03	12:00		58.6	---	PUMP	59															
JUN 04	12:00		60.4	---	PUMP	53															
JUL 14	12:50		50.5	---	PUMP	48															
JUL 14	13:07	15.0	7.95	10.5 M	DH59	41	138														
JUL 14	13:13	15.0	10.5	28.0 M	DH59	40	133														
JUL 14	13:20	15.0	49.6	32.0	DH59	40	133														
JUL 14	13:27	15.0	5.78	38.5 M	DH59	44	132														
JUL 14	13:42	15.0	9.87	49.0 M	DH59	41	134														
JUL 14	13:46	15.0	12.6	59.5 M	DH59	41	133														
JUL 16	12:00		47.8	---	PUMP	42															
JUL 17	12:00		46.9	---	PUMP	42															
JUL 19	12:00		43.1	---	PUMP	45															
JUL 21	12:00		40.0	---	PUMP	43															
JUL 22	08:05		38.5	---	PUMP	40															
JUL 23	12:30		37.5	---	PUMP	40															
JUL 24	12:30		35.8	---	PUMP	41															
JUL 25	12:40		32.8	---	PUMP	42															
JUL 26	12:40		30.8	---	PUMP	43															
JUL 30	12:50		27.9	---	PUMP	44															
JUL 31	12:50		28.9	---	PUMP	42															
AUG 02	13:00		25.2	---	PUMP	46															
AUG 04	13:00		23.2	---	PUMP	39															
AUG 06	13:00		21.8	---	PUMP	41															
AUG 07	13:00		20.7	---	PUMP	44															
AUG 08	13:00		20.1	---	PUMP	41															
AUG 11	13:10		20.1	---	PUMP	37															
AUG 13	13:10		21.7	---	PUMP	56															
AUG 18	08:25		23.7	---	PUMP	42															
AUG 18	13:10		23.7	---	PUMP	43															
AUG 20	13:20		22.2	---	PUMP	45															
AUG 21	13:20		21.7	---	PUMP	52															
AUG 23	13:30		20.0	---	PUMP	48															
AUG 25	13:30		18.5	---	PUMP	51															
AUG 27	13:30		17.7	---	PUMP	48															
AUG 28	13:30		17.7	---	PUMP	39															
AUG 30	13:40		20.5	---	PUMP	48															
SEP 01	13:40		23.5	---	PUMP	48															
SEP 03	13:40		24.3	---	PUMP	49															
SEP 04	13:40		25.5	---	PUMP	40															
SEP 08	13:50		27.4	---	PUMP	31															
SEP 09	13:50		29.6	---	PUMP	42															
SEP 10	13:55		33.5	---	PUMP	42															
SEP 11	13:55		36.1	---	PUMP	42															
SEP 13	13:55		38.4	---	PUMP	41															
SEP 15	14:00		37.8	---	PUMP	48															
SEP 17	14:00		36.8	---	PUMP	40															
SEP 18	14:00		36.5	---	PUMP	38															
SEP 20	14:00		36.2	---	PUMP	34															

NOTE : SINGLE VERTICAL IS UNDETERMINED FOR 1987

DISCHARGE SYMBOL(S): E - ESTIMATED
VERTICAL SYMBOL(S): M - A SEDIMENT MEASUREMENT VERTICAL

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF OPERATION SUMMARY (JFMAMJJASOND)	TYPE OF SAMPLING	SAMPLED CONCENTRATION MAXIMUM (mg/L)		SAMPLED CONCENTRATION MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		TOTAL FOR PERIOD (TONNES)	SUMMARY : MAY-SEP MEAN LOAD (TONNES)	HISTORICAL MEAN LOAD (TONNES)	STANDARD ERROR OF MEAN %
1978	----P-PPC---	DUAL	114	MAY 28	33	SEP 14	1 100	MAY 28	7 550	---	---	---
1980	----CCCCC---	DUAL	188	AUG 26	32	JUL 18	1 670	AUG 26	44 800	293	293	---
1981	----CCCCC---	DUAL	86	MAY 20	10	AUG 27 *	2 570	MAY 18	30 200	197	245	19.6
1982	----CCCCC---	DUAL	101	MAY 10	35	JUL 18	4 230	MAY 03	78 400	512	334	27.8
1983	----CCCCP---	DUAL	105	JUL 19	34	SEP 02	1 740	MAY 30	58 800	---	---	---
1984	----CCCCC---	MANUAL	68	JUN 10	21	AUG 28	644	MAY 08	---	175	294	26.2
1985	----CCCCCP--	DUAL	208	JUN 25	31	AUG 27	3 860	MAY 01	89 100	847	385	25.3
1986	----CCCCC---	DUAL	250	JUL 22 *	27	JUL 27	6 080	MAY 15 *	135 000 *	887	452	25.5
1987	---PCCCCC---	DUAL	126	APR 28	34	SEP 20	2 310	APR 30	42 100	233	421	24.3

DUAL - MANUAL AND AUTOMATIC SAMPLING MANUAL - MANUAL SAMPLING

C - COMPLETE MONTH P - PARTIAL MONTH * - EXTREME FOR PERIOD OF RECORD

MANITOBA

PEMBINA RIVER NEAR WINDYGATES - STATION NO. 05OD007

SUSPENDED SEDIMENT FOR 1987

LOCATION: LAT 49 01 53 N LONG 98 18 40 W
DRAINAGE AREA: 7 500 km²
TYPE OF FLOW: REGULATED
TYPE OF GAUGE: RECORDING

INTERNATIONAL GAUGING STATION

TOTAL SUSPENDED SEDIMENT LOAD 118 000 TONNES FOR THE PERIOD MAR 01 TO NOV 30

REMARKS:DEC. 87, NOV, DEC, JAN * FEB SAMPLED ONLY ABOVE SPECIFIED FLOWS

DAY	MAR DAILY DISCHARGE (m³/s)	MAR MEAN CONCENTRATION (mg/L)	MAR DAILY LOAD (t)	APR DAILY DISCHARGE (m³/s)	APR MEAN CONCENTRATION (mg/L)	APR DAILY LOAD (t)	MAY DAILY DISCHARGE (m³/s)	MAY MEAN CONCENTRATION (mg/L)	MAY DAILY LOAD (t)	DAY
1	0.037 B	B	0.03	0.118 B	B	0.08	34.0	386	1 130	1
2	0.036 B	B	0.03	0.448 B	10	0.39	31.8	388	1 020	2
3	0.043 B	B	0.03	2.88 B	18	4.89	30.2	383 S	831	3
4	0.047 B	10	0.04	12.0 B	287	266	28.9	345	861	4
5	0.048 B	10	0.04	24.4 B	1 480 S	3 130	27.7	338	811	5
6	0.070 B	11	0.07	60.5	2 120 S	11 100	26.7	334 S	770	6
7	0.082 B	11	0.08	59.5	1 880 S	8 190	26.0	324 S	726	7
8	0.100 B	12	0.10	59.2	1 640 S	9 810	25.2	315	686	8
9	0.074 B	13	0.08	53.7	1 280 S	5 830	24.2	308	644	9
10	0.118 B	13 S	0.13	53.4	988 S	4 480	23.3	298 S	602	10
11	0.172 B	14	0.21	48.2	833 S	3 390	22.5	286	558	11
12	0.186 B	16	0.26	44.5	672 S	3 350	21.7	273	513	12
13	0.241 B	18	0.37	44.4	658 S	2 630	20.9	265 S	488	13
14	0.288 B	18	0.41	48.3	625 S	2 500	19.8	248	421	14
15	0.238 B	18	0.36	50.3	885 S	3 020	19.0	241	398	15
16	0.189 B	17	0.25	53.1	820 S	3 780	18.5	234	374	16
17	0.186 B	16	0.26	54.6	884 S	4 170	17.8	226	347	17
18	0.188 B	18	0.32	56.7	877 S	4 300	16.9	233	326	18
19	0.178 B	26	0.40	58.2	920 S	4 630	16.2	216	305	19
20	0.304 B	27	0.71	57.8	880 S	4 740	15.6	213 S	287	20
21	0.294 B	25	0.64	56.2	818 S	3 910	15.3	203	268	21
22	0.233 B	23	0.46	53.7	704 S	3 270	14.6	192	248	22
23	0.262 B	21	0.51	52.4	594 S	2 680	14.1	178	218	23
24	0.194 B	19	0.32	48.3	572 S	2 440	13.2	167 S	180	24
25	0.212 B	17	0.31	47.4	570 S	2 330	12.4	158	169	25
26	0.204 B	15	0.26	45.0	531 S	2 080	12.0	151	157	26
27	0.112 B	14	0.14	42.2	477 S	1 740	11.4	144	142	27
28	0.108 B	13	0.12	40.3	448 S	1 580	11.1	136 S	130	28
29	0.088 B	12	0.08	38.4	426	1 410	10.7	132	122	29
30	0.041 B	10	0.04	35.9	402 S	1 250	10.1	126	112	30
31	0.053 B	B	0.04				9.52	123 S	101	31
TOTAL	4.578		7.05	1 316.242		102 831.36	601.42		14 030	TOTAL

DAY	JUN DAILY DISCHARGE (m³/s)	JUN MEAN CONCENTRATION (mg/L)	JUN DAILY LOAD (t)	JUL DAILY DISCHARGE (m³/s)	JUL MEAN CONCENTRATION (mg/L)	JUL DAILY LOAD (t)	AUG DAILY DISCHARGE (m³/s)	AUG MEAN CONCENTRATION (mg/L)	AUG DAILY LOAD (t)	DAY
1	9.13	121	95.4	2.17	10 S	1.87	0.758	13	0.85	1
2	8.88	118	87.3	2.08	8	1.42	0.882	13 S	0.78	2
3	8.02	113 S	78.3	1.93	9	1.50	0.842	13	0.72	3
4	7.88	108	74.2	1.82	10	1.57	0.810	12	0.63	4
5	7.84	104	70.4	1.74	10 S	1.50	0.805	9	0.47	5
6	7.48	89 S	63.8	1.87	8	1.15	0.578	8 S	0.40	6
7	8.04	82	55.2	1.58	8	1.08	0.536	8	0.37	7
8	8.48	68	49.0	1.47	8 S	1.02	0.503	8	0.39	8
9	8.14	83	44.0	1.48	9	1.14	0.487	8 S	0.32	9
10	8.83	78 S	38.9	2.03	24	4.21	0.420	8	0.29	10
11	8.87	73	35.6	2.13	23	4.23	0.412	8	0.32	11
12	8.37	71	32.9	1.78	18 S	2.94	0.337	8	0.26	12
13	8.18	70	31.3	1.62	17	2.36	0.232	10 S	0.20	13
14	8.01	68 S	29.4	1.68	16	2.34	0.473	36	1.65	14
15	4.88	88 S	26.6	1.89	15 S	2.18	0.988	81 S	5.04	15
16	4.40	84	24.3	1.55	14	1.87	0.801	48	3.18	16
17	4.20	88 S	24.0	1.37	14	1.88	0.893	48	4.20	17
18	3.93	83	21.3	1.33	15	1.72	2.20	148 S	27.8	18
19	3.85	81	19.2	1.40	13 S	1.57	2.34	108	21.6	19
20	3.84	87	17.4	1.26	13	1.40	2.05	73 S	12.9	20
21	3.88	88 S	17.8	1.17	13	1.31	1.85	63	8.47	21
22	3.63	48	14.8	1.18	12 S	1.22	1.80	33	4.68	22
23	3.32	39	11.2	1.18	12	1.22	1.61	27	3.62	23
24	3.02	31 S	8.08	1.14	10	0.88	1.44	26	3.11	24
25	2.82	34	8.85	1.10	9	0.86	1.46	20 S	2.62	25
26	2.70	21	4.80	1.04	9 S	0.81	1.17	18	1.82	26
27	2.62	18	4.30	1.01	10	0.87	1.43	21 S	2.68	27
28	2.53	17 S	3.72	0.932	11	0.89	1.48	21	2.63	28
29	2.38	14	2.88	0.858	11 S	0.82	1.35	19	2.22	29
30	2.24	12	2.32	0.832	11	0.78	1.31	18 S	1.70	30
31				0.819	13	0.92	1.28	13	1.44	31
TOTAL	148.78		894.36	45.001		49.48	32.487		117.05	TOTAL

B - ICE CONDITIONS

S - SAMPLE(S) COLLECTED THIS DAY

MANITOBA

PEMBINA RIVER NEAR WINDYGATES - STATION NO. 05OB007

SUSPENDED SEDIMENT FOR 1987

DAY	SEP DAILY DISCHARGE (m^3/s)	SEP MEAN CONCENTRATION (mg/L)	SEP DAILY LOAD (t)	OCT DAILY DISCHARGE (m^3/s)	OCT MEAN CONCENTRATION (mg/L)	OCT DAILY LOAD (t)	NOV DAILY DISCHARGE (m^3/s)	NOV MEAN CONCENTRATION (mg/L)	NOV DAILY LOAD (t)	DAY
1	1.28	13	1.44	1.68	23 S	3.34	0.889	17 S	1.47	1
2	1.38	18	2.18	1.84	35	5.56	0.847	18	1.47	2
3	1.44	30	3.73	1.80	36	5.60	0.894	18	1.39	3
4	1.43	30 S	3.71	1.72	31	4.61	0.827	17	1.21	4
5	1.42	31	3.80	1.76	25 S	3.60	0.771	18	1.20	5
6	1.40	32	3.87	1.85	16 S	2.28	0.770 B	24	1.80	6
7	1.45	31	3.88	1.89	14	1.82	0.740 B	27	1.73	7
8	1.51	28 S	3.78	1.78	14	2.15	0.691 B	32	1.91	8
9	1.50	30	3.88	1.81	15	2.35	0.788 B	49	3.25	9
10	1.58	32	4.40	1.71	16 S	2.22	0.767 B	47	3.11	10
11	1.59	34 S	4.67	1.63	14	1.97	0.765 B	22	1.45	11
12	1.61	32	4.45	1.63	14	1.97	0.763	12	0.79	12
13	1.59	30 S	4.12	1.66	14	1.81	0.719	11	0.68	13
14	1.58	30	4.10	1.48	15 S	1.83	0.668	11	0.65	14
15	1.55	30	4.02	1.43	14	1.73	0.675	11	0.64	15
16	1.52	31 S	4.07	1.40	14	1.69	0.637	11	0.61	16
17	1.55	31	4.18	1.38	15	1.78	0.597	12 S	0.62	17
18	1.57	30	4.07	1.35	15 S	1.76	0.736	11	0.70	18
19	1.58	30	4.04	1.28	14	1.55	0.834 B	12	0.86	19
20	1.52	29 S	3.81	1.21	14	1.48	0.838 B	15	0.83	20
21	1.55	28	3.75	1.17	14	1.42	0.849 B	18	1.07	21
22	1.58	27	3.69	1.16	14	1.43	0.860 B	22	1.06	22
23	1.57	27 S	3.66	1.18	14	1.44	0.824 B	23	1.04	23
24	1.54	25	3.33	1.17	13	1.31	0.890 B	22	1.12	24
25	1.51	26	3.36	1.13	14 S	1.37	0.887 B	16	1.04	25
26	1.50	25	3.24	1.08	15	1.40	0.848 B	17	0.85	26
27	1.48	25	3.22	1.02	15	1.32	0.838 B	14	0.65	27
28	1.62	23 S	3.22	1.01	13 S	1.13	0.486 B	13	0.55	28
29	1.66	22	3.16	0.985	12	1.02	0.443 B	12	0.48	29
30	1.66	22	3.16	0.895	14	1.20	0.423 B	11	0.40	30
31				1.03	17	1.61				31
TOTAL	45.72		109.84	43.880		86.13	20.853		34.31	TOTAL

MANITOBA

PEMBINA RIVER NEAR WINDYGATES - STATION NO. 05080007

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1987

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m^3/s)	SINGLE SAMPLING VERTICAL (m)	TYPE OF SAMPLER	INSTANT. CONCENT. (mg/L)	DISSOLVED SOLIDS (mg/L)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	PERCENT SAND	SILT	CLAY
MAR 10	10:00	0.5	0.110 B	5.0 X	DH48	12	882														
APR 05	08:45	0.5	12.3 B	40.0	DH59	506	270	41	59	77	92	95	98	99	100				2	39	59
APR 05	14:00	2.0	26.3 B	40.0	DH59	1990	271														
APR 05	19:15	3.0	33.3 B	40.0	DH59	2010															
APR 05	08:15	1.0	58.8	40.0	DH59	1780															
APR 05	13:29	3.0	89.5	40.0	DH59	2340	294	21	29	46	59	75	85	92	98	100			14	57	29
APR 06	19:30	5.0	62.3	40.0	DH59	2190	308	24	31	49	58	77	88	92	99	100			12	57	31
APR 07	08:25	4.0	59.5	40.0	DH59	1630															
APR 07	13:00	7.0	58.7	40.0	DH59	1520															
APR 07	20:05	8.0	58.2	40.0	DH59	1200															
APR 08	08:30	5.0	70.3	40.0	DH59	1700	306	22	33	47	58	75	84	90	96	100			16	51	33
APR 08	13:50	9.0	71.9	40.0	DH59	1500	303	25	28	42	50	67	78	86	98	100			22	52	26
APR 08	20:00	9.0	70.5	40.0	DH59	1330	319	24	34	50	60	76	88	93	99	100			14	52	34
APR 09	08:30	8.0	85.2	40.0	DH59	1280 C															
APR 09	14:28	9.0	83.1	40.0	DH59	1080															
APR 09	19:05	9.0	80.8	40.0	DH59	1100 C															
APR 10	08:20	7.0	55.1	40.0	DH59	893 C	282														
APR 10	14:10	7.0	52.3	40.0	DH59	886															
APR 10	19:25	8.0	49.9	40.0	DH59	872															
APR 11	08:20	4.4	46.0	40.0	DH59	780															
APR 11	10:00	5.0	10.4	22.0 M	DH59	712	333	28	37	54	66	78	87	94	99	100			13	50	37
APR 11	10:05	5.0	10.3	36.0 M	DH59	833	337	25	35	48	57	70	77	84	96	100			23	42	35
APR 11	10:10	5.0	7.83	34.0 M	DH59	817	335	23	35	49	58	71	79	85	95	100			21	44	35
APR 11	10:15	5.0	6.66	38.0 M	DH59	780	333	26	33	48	59	73	81	87	97	100			19	48	33
APR 11	10:20	5.0	10.7	40.0 M	DH59	717	333	31	38	54	64	78	87	93	99	100			13	49	38
APR 11	18:40	7.0	45.6	40.0	DH59	704															
APR 12	08:30	5.0	44.5	40.0	DH59	948															
APR 12	19:15	7.0	44.3	40.0	DH59	783															
APR 13	08:30	5.0	44.2	40.0	DH59	887															
APR 13	19:00	9.0	44.4	40.0	DH59	822															
APR 14	08:35	5.0	45.5	40.0	DH59	577															
APR 14	19:40	9.0	47.2	40.0	DH59	818															
APR 15	08:00	9.0	4.74	43.0 M	DH59	815	437														
APR 15	09:05	9.0	8.31	40.0 M	DH59	821	442														
APR 15	09:10	9.0	9.85	37.0 M	DH59	888	440														
APR 15	09:15	9.0	11.0	32.0 M	DH59	885	439														
APR 15	09:20	9.0	15.6	26.0 M	DH59	852	433														
APR 15	19:45	11.0	51.8	40.0	DH59	743															
APR 16	08:00	9.0	52.8	40.0	DH59	727															
APR 16	18:27	12.0	53.8	40.0	DH59	730															
APR 17	08:45	10.0	54.4	40.0	DH59	701															
APR 17	18:50	13.0	55.1	40.0	DH59	799															
APR 18	08:30	11.0	56.2	40.0	DH59	873															
APR 18	20:15	15.0	57.6	40.0	DH59	886															
APR 19	08:40	14.0	57.9	40.0	DH59	858															
APR 19	20:45	16.0	58.6	40.0	DH59	893															
APR 20	08:45	12.0	58.3	40.0	DH59	891															
APR 20	20:05	12.0	57.0	40.0	DH59	869															
APR 21	08:08	8.5	55.6	40.0	DH59	843	338														
APR 21	18:15	13.0	54.5	40.0	DH59	836															
APR 22	08:45	11.0	53.8	40.0	DH59	808															
APR 22	20:15	13.0	53.4	40.0	DH59	848															
APR 23	08:30	10.0	52.8	40.0	DH59	486															
APR 23	11:05	12.0	14.9	40.0 M	DH59	384	370														
APR 23	11:10	12.0	9.55	36.0 M	DH59	528	385														
APR 23	11:15	12.0	8.38	32.0 M	DH59	628	378														
APR 23	11:20	12.0	8.02	28.0 M	DH59	515	376														
APR 23	11:28	12.0	11.0	23.5 M	DH59	466	372														
APR 23	18:00	13.0	51.8	40.0	DH59	486	392														
APR 24	08:15	10.0	48.5	40.0	DH59	453															
APR 24	20:15	12.0	46.5	40.0	DH59	396															
APR 25	08:35	11.0	47.9	40.0	DH59	421															
APR 25	19:00	13.5	46.7	40.0	DH59	462															
APR 26	08:45	12.0	45.7	40.0	DH59	392	404														
APR 26	08:48	12.0	45.7	40.0	DH59	396	405														
APR 26	19:50	14.0	43.8	40.0	DH59	405															
APR 27	08:05	11.0	42.4	40.0	DH59	385															
APR 28	08:30	12.0	40.6	40.0	DH59	380															
APR 30	08:00	11.0	38.1	40.0	DH59	317	391														
MAY 03	08:00	12.0	30.4	40.0	DH59	284															
MAY 06	14:30	18.0	28.7	40.0	DH59	273															
MAY 07	10:00	16.0	3.17	42.0 M	DH59	271	443	28	44	61	77	85	91	95	99	100			8	47	44
MAY 07	10:05	16.0	4.47	40.0 M	DH59	288	486	32	42	64	73	83	89	94	99	100			11	47	42
MAY 07	10:10	16.0	5.51	37.0 M	DH59	387	473	30	38	50	60	65	70	75	91	99	100		30	32	38
MAY 07	10:15	16.0	7.33	33.0 M	DH59	384	443	24	35	47	56	61	66	70	86	99	100		34	31	35
MAY 07	10:20	16.0	8.33	28.0 M	DH59	280	448	28	44	63	73	85	92	97	100				8	48	44
MAY 10	08:05	15.0	23.5	40.0	DH59	274	801														
MAY 10	09:08	15.0	23.5	40.0	DH59	235	803														
MAY 13	18:45	19.0	20.7	40.0	DH59	219															
MAY 20	14:40	17.0	4.70	40.0 M	DH59	194	540														
MAY 20	14:45	17.0	2.83	38.0 M	DH59	228 C	530														
MAY 20	14:50	17.0	2.43	36.0 M	DH59	185 C	523														
MAY 20	14:55	17.0	3.61	34.0 M	DH59	157	526														
MAY 20	15:00	17.0	1.68	28.0 M	DH59	141	523														
MAY 24	19:35	17.0	12.8	40.0	DH59	150															
MAY 26	08:45	17.0	11.2	40.0	DH59	128	535														
MAY 31	08:15	20.0	8.53	40.0	DH59	117															
JUN 03	20:20	18.0	7.84	40.0	DH59	108	563														
JUN 06	18:45	24.0	7.40	40.0	DH59	83															
JUN 10	14:30	18.0	5.83	40.0	DH59	74	572														
JUN 14	15:45	25.0	4.86	40.0	DH59	87															
JUN 15	14:40	28.0	0.852	34.0 M	DH48	83	594														
JUN 15	14:50	28.0	1.20	36.5 M	DH48	84	598														
JUN 15	15:00	28.0	1.11	38.0 M	DH48	88	598														
JUN 15	15:10	28.0	1.05	40.5 M	DH48	84	594														
JUN 15	15:25	28.0	0.638	43.0 M	DH48	88	595														
JUN 17	14:20	26.0	4.17	40.0	DH59	86	593														
JUN 21	09:05	22.0	3.72	40.0	DH59	57															
JUN 24	21:30	23.0	2.84	40.0	DH59	28	568														
JUN 28	20:40	18.0	2.52	40.0	DH59	15															
JUL 01	19:44	22.0	2.12	40.0	DH59	10	587														
JUL 05	09:35	21.0	1.74	40.0	DH59	11															

NOTE : SINGLE VERTICAL LOCATED AT 40 METRES FOR 1987

DISCHARGE SYMBOL(S). B - ICE CONDITIONS
CONCENTRATION SYMBOL(S): C - COARSE MATERIAL PRESENT

VERTICAL SYMBOL(S): M - A SEDIMENT MEASUREMENT VERTICAL X - NOT AT REGULAR SINGLE SAMPLE VERTICAL

CONTINUED

PEMBINA RIVER NEAR WINDYGATES - STATION NO. 05OB007 (CONTINUED)

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1987

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m³/s)	SINGLE SAMPLING VERTICAL (m)	TYPE OF SAMPLER	INSTANT. CONCENT. (mg/L)	DISSOLVED SOLIDS (mg/L)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	PERCENT SAND	SILT	CLAY
JUL 05	20:15	24.0	1.48	40.0	DH59	7	584														
JUL 12	16:05	20.0	1.73	40.0	DH59	18															
JUL 15	19:25	18.0	1.64	40.0	DH59	15	551														
JUL 18	11:10	18.0	1.41	40.0	DH59	14															
JUL 22	14:30	20.0	1.20	40.0	DH48	13	551														
JUL 26	11:40	24.0	1.04	40.0	DH59	9															
JUL 28	20:00	26.0	0.825	40.0	DH59	11	583														
AUG 02	20:10	27.0	0.671	40.0	DH59	13															
AUG 06	09:00	18.0	0.557	40.0	DH59	8	588														
AUG 09	08:55	21.0	0.478	40.0	DH59	8															
AUG 13	08:10	14.0	0.223	40.0	DH59	11	607														
AUG 15	18:10	18.0	0.937	40.0	DH59	48															
AUG 18	07:50	18.0	2.12	40.0	DH59	147															
AUG 18	07:51	18.0	2.12	40.0	DH59	147															
AUG 20	07:50	18.0	2.08	40.0	DH59	76	518														
AUG 20	07:51	18.0	2.08	40.0	DH59	77	522														
AUG 25	15:15	15.0	1.47	40.0	DH48	19															
AUG 27	10:10	15.0	1.55	40.0	DH59	22	536														
AUG 30	08:40	14.0	1.31	40.0	DH59	16															
SEP 04	08:05	17.0	1.43	40.0	DH59	31	470														
SEP 08	08:30	12.0	1.60	40.0	DH59	31															
SEP 11	09:05	13.0	1.59	40.0	DH59	36	472														
SEP 13	08:20	11.0	1.57	40.0	DH59	30															
SEP 15	08:40	13.0	1.51	40.0	DH59	32															
SEP 20	08:25	11.0	1.51	40.0	DH59	39	515														
SEP 23	09:00	13.0	1.58	40.0	DH48	27															
SEP 28	08:50	12.0	1.64	40.0	DH59	24	493														
OCT 01	08:50	11.0	1.68	40.0	DH59	23															
OCT 05	08:30	9.5	1.78	40.0	DH59	28	527														
OCT 06	08:20	6.0	1.67	40.0	DH48	15															
OCT 10	09:15	2.0	1.72	40.0	DH59	15															
OCT 14	16:35	8.0	1.47	40.0	DH59	15	536														
OCT 18	09:50	4.0	1.38	40.0	DH59	14															
OCT 25	09:20	1.0	1.12	40.0	DH59	15	530														
OCT 28	14:20	5.0	1.03	40.0	DH59	13															
NOV 01	08:09	5.0	0.887	40.0	DH59	17															
NOV 17	15:30	1.0	0.709	40.0	DH48	11	567														

NOTE : SINGLE VERTICAL LOCATED AT 40 METRES FOR 1987

POINT INTEGRATING PARTICLE-SIZE ANALYSIS OF SUSPENDED SEDIMENT FOR 1987

DATE	TIME	WATER TEMP. (°C)	PANEL DISCHARGE (m³/s)	SAMPLING VERTICAL (m)	DEPTH OF SAMPLE (m)	CONCENT OF SAMPLE (mg/L)	DISSOLVED SOLIDS (mg/L)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	PERCENT SAND	SILT	CLAY
APR 05	13:30	3.0	10.2	7.0	1.25	2400	295	28	34	51	81	78	88	83	98	100					
APR 05	13:34	3.0	10.2	7.0	1.05	2390	296	26	36	51	82	78	88	95	98	100			12	54	34
APR 05	13:38	3.0	10.2	7.0	0.88	2280	320	28	35	51	85	81	91	97	100				12	52	36
APR 05	13:41	3.0	10.2	7.0	0.20	2270	282	31	39	57	84	83	92	97	100				8	55	35
																			8	53	39
APR 05	13:45	3.0	13.8	12.0	1.55	2470	313	27	33	48	68	75	88	92	98	100						
APR 05	13:48	3.0	13.8	12.0	1.32	2480	300	24	32	48	67	74	85	91	98	100			14	53	33
APR 05	13:53	3.0	13.8	12.0	0.83	2480	285	23	30	45	67	73	84	89	97	100			15	53	32
APR 05	13:57	3.0	13.8	12.0	0.20	2320	276	22	30	45	62	78	89	95	99	100			13	54	33
																			11	53	36
APR 05	14:00	3.0	12.2	10.0	2.10	3050	311	18	28	41	60	63	73	77	93	100						
APR 05	14:01	3.0	12.2	10.0	1.75	2990	287	22	28	42	60	65	73	78	93	100			27	45	28
APR 05	14:03	3.0	12.2	10.0	1.10	2680	303	24	30	46	64	68	80	87	98	100			27	45	28
APR 05	14:04	3.0	12.2	10.0	0.20	2410	318	20	31	47	68	78	87	93	99	100			20	50	30
																			13	56	31
APR 05	14:06	3.0	9.88	10.0	1.85	4880	310	13	18	28	30	38	46	50	74	88	100					
APR 05	14:07	3.0	9.88	10.0	1.55	3500	301	18	24	35	42	54	62	68	85	88	100		55	27	18
APR 05	14:10	3.0	9.88	10.0	1.00	2810	320	23	29	43	63	67	77	84	98	100			38	38	24
APR 05	14:12	3.0	9.88	10.0	0.20	2480	301	8	31	48	67	77	88	93	98	100			23	48	29
																			14	55	31
APR 05	14:15	3.0	12.8	21.0	1.85	2700	287	24	30	45	62	68	78	87	98	100			21	49	30
APR 05	14:17	3.0	12.8	21.0	1.32	3130	300	18	26	38	47	60	70	80	94	100			30	44	26
APR 05	14:20	3.0	12.8	21.0	0.83	2800	302	20	28	43	63	69	78	88	98	100			21	50	29
APR 05	14:25	3.0	12.8	21.0	0.20	2430	318	23	30	46	67	74	86	93	98	100			14	56	30

NOTE : SINGLE VERTICAL LOCATED AT 40 METRES FOR 1987

MANITOBA

PEMBINA RIVER NEAR WINDYGATES - STATION NO. 05OB007

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF OPERATION SUMMARY (JFMAMJJASOND)	TYPE OF SAMPLING	SAMPLED CONCENTRATION MAXIMUM (mg/L)			SAMPLED CONCENTRATION MINIMUM (mg/L)			SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)			SUSPENDED SEDIMENT LOAD TOTAL FOR PERIOD (TONNES)		SUMMARY : JAN-DEC MEAN LOAD (TONNES)	SUMMARY : JAN-DEC HISTORICAL MEAN LOAD (TONNES)	SUMMARY : JAN-DEC STANDARD ERROR OF MEAN %
1962	---PCCCCCCCC	MANUAL	1 480	APR 20		5	JUN 28		5 590	APR 21		30 600		---	---	---
1963	CCCCCCCCCCCC	MANUAL	520	JUN 07		0	JAN 29	*	289	JUN 08		8 480		23.2	23.2	---
1964	CCCCCCCCCCCC	MANUAL	595	APR 21		12	JUL 12		378	APR 21		12 600		34.0	28.8	18.9
1965	CCCCCCCCCCCC	MANUAL	1 580	MAY 05		5	AUG 12		5 300	APR 14		57 800		158	71.7	80.3
1966	CCCCCCCCCCCC	MANUAL	1 730	APR 01		11	NOV 21		6 470	APR 01		88 400		237	113	45.5
1967	CCCCCCCCCCCC	MANUAL	5 800	APR 20	*	0	OCT 02		13 800	APR 20		85 800		235	137	34.1
1968	CCCCCCCCCCCC	MANUAL	1 070	MAR 28		20	JUL 10		1 650	MAR 28		23 200		63.5	125	32.1
1969	CCCCCCCCCCCC	MANUAL	1 230	APR 12		8	JAN 09		8 770	APR 19		144 000		395	184	31.3
1970	CCCCCCCCCCCC	MANUAL	2 830	APR 25		30	OCT 03		16 800	APR 25		178 000		488	204	29.5
1971	CCCCCCCCCCCC	MANUAL	1 430	APR 11		20	OCT 19		17 500	APR 11		160 000		437	230	25.7
1972	CCCCCCCCCCCC	MANUAL	1 570	APR 11		17	OCT 15		6 040	APR 11		103 000		282	238	22.6
1973	CCCCCCCCCCCC	MANUAL	365	JUL 25		24	SEP 18		73.4	AUG 09		2 580		7.11	215	24.3
1974	CCCCCCCCCCCC	MANUAL	3 870	APR 16		25	AUG 15		28 300	MAY 21	*	393 000	*	1 080	287	30.1
1975	CCCCCCCCCCCC	MANUAL	1 180	MAY 01		10	FEB 25		3 480	MAY 12		80 800		248	284	28.0
1976	CCCCCCCCCCCC	MANUAL	2 320	APR 05		20	AUG 03		12 400	APR 05		288 000		790	320	26.7
1977	CCCCCCCCCCCC	MANUAL	1 310	MAY 15		13	APR 17		274	MAY 22		1 480		4.00	289	26.5
1978	CCCCCCCCCCCC	MANUAL	2 110	APR 06		5	MAR 29		4 240	APR 09		41 500		114	267	26.1
1979	CCCCCCCCCCCC	MANUAL	2 080	APR 21		15	AUG 12		20 200	APR 22		352 000		985	327	24.8
1980	CCCCCCCCCCCC	MANUAL	1 290	MAY 28		13	JAN 15		385	MAY 28		3 330		9.11	309	25.4
1981	CCCCCCCCCCCC	MANUAL	2 180	MAY 23		5	NOV 15		1 530	MAY 23		4 370		12.0	294	25.8
1982	CCCCCCCCCCCC	MANUAL	4 880	JUN 07		6	SEP 15		12 600	JUN 07		53 100		148	266	25.3
1983	CCCCCCCCCCCC	MANUAL	1 810	APR 08		4	AUG 07		3 880	APR 08		46 400		127	279	24.8
1984	CCCCCCCCCCCC	MANUAL	801	JUN 16		3	NOV 7		739	JUN 16		1 780		4.81	268	25.2
1985	CCCCCCCCCCCC	MANUAL	1 730	MAR 22		7	JUL 24		2 820	MAR 23		44 700		123	260	24.8
1986	CCCCCCCCCCCC	MANUAL	1 630	MAR 22		8	OCT 6		2 720	MAR 28		48 300		132	255	24.3
1987	--CCCCCCCC-	MANUAL	2 340	APR 6		7	JUL 8		11 100	APR 06		118 000		---	---	---

MANUAL - MANUAL SAMPLING

C - COMPLETE MONTH P - PARTIAL MONTH * - EXTREME FOR PERIOD OF RECORD

RED RIVER AT EMERSON - STATION NO. 05DC001

SUSPENDED SEDIMENT FOR 1987

LOCATION: LAT 49 00 30 N LONG 97 12 40 W
DRAINAGE AREA: 104 000 km²
TYPE OF FLOW: REGULATED
TYPE OF GAUGE: RECORDING

INTERNATIONAL GAUGING STATION

TOTAL SUSPENDED SEDIMENT LOAD 818 000 TONNES FOR THE PERIOD MAR 01 TO NOV 21

REMARKS:DEC. 87, NOV, DEC, JAN * FEB SAMPLED ONLY ABOVE SPECIFIED FLOWS

DAY	MAR DAILY DISCHARGE (m³/s)	MAR MEAN CONCENTRATION (mg/L)	MAR DAILY LOAD (t)	APR DAILY DISCHARGE (m³/s)	APR MEAN CONCENTRATION (mg/L)	APR DAILY LOAD (t)	MAY DAILY DISCHARGE (m³/s)	MAY MEAN CONCENTRATION (mg/L)	MAY DAILY LOAD (t)	DAY
1	47.8 B	7	28.0	820 B	83	4 450	170	448 S	8 580	1
2	47.8 B	7	28.9	880 B	87	5 110	159	417 S	5 730	2
3	47.4 B	7	28.7	740 B	83	5 950	147	403 S	5 120	3
4	47.3 B	7 S	28.6	800 B	88	6 840	137	373 S	4 420	4
5	47.3 B	7	28.6	880 B	124	9 210	130	346 S	3 890	5
6	47.7 B	7	28.6	920 B	174 S	13 800	123	339 S	3 800	6
7	48.8 B	8	28.2	1 020	259 S	22 800	117	323 S	3 270	7
8	48.8 B	7	30.1	1 050	335 S	30 400	112	308 S	2 980	8
9	52.5 B	7	31.8	1 080	295 S	27 000	105	310 S	2 810	9
10	62.9 B	10	54.3	1 050	239 S	21 700	89.3	295 S	2 630	10
11	98.3 B	13	110	1 030	209 S	18 600	83.7	288 S	2 400	11
12	142 B	16	196	885	188 S	14 400	89.8	278 S	2 150	12
13	172 B	19	282	852	149 S	12 300	83.1	265 S	1 810	13
14	169 B	22	369	890	133 S	10 200	77.8	244 S	1 640	14
15	198 B	23	393	813	130 S	9 130	73.7	213 S	1 380	15
16	201 B	25	434	715	127 S	7 850	70.2	194 S	1 180	16
17	199 B	28	481	883	140 S	8 020	87.2	188 S	1 090	17
18	194 B	32	536	805	188 S	8 880	85.1	183 S	1 030	18
19	190 B	35	575	841	203 S	9 480	83.1	178 S	880	19
20	188 B	37	595	677	280 S	10 700	81.8	177 S	947	20
21	184 B	40	636	618	329 S	11 800	83.8	181 S	995	21
22	186 B	43	691	387	407 S	12 800	86.8	173 S	996	22
23	202 B	47	820	317	445 S	12 200	72.2	151 S	942	23
24	233 B	51	1 030	278	486 S	11 200	80.1	138 S	941	24
25	275 B	58	1 330	249	508 S	10 900	108	188 S	1 570	25
26	321 B	80	1 880	228	492 S	9 730	182	308 S	4 310	26
27	374 B	88	2 100	213	525 S	9 680	195	572 S	9 640	27
28	423 B	70	2 860	200	504 S	8 710	204	709 S	12 600	28
29	481 B	73	3 030	187	493 S	7 970	211	491 S	8 950	29
30	530 B	77	3 530	175	471 S	7 120	242	453 S	9 470	30
31	575 B	81	4 020				274	437 S	10 300	31
TOTAL	5 052.5		25 882.0	19 115		358 920	3 723.2		118 220	TOTAL

DAY	JUN DAILY DISCHARGE (m³/s)	JUN MEAN CONCENTRATION (mg/L)	JUN DAILY LOAD (t)	JUL DAILY DISCHARGE (m³/s)	JUL MEAN CONCENTRATION (mg/L)	JUL DAILY LOAD (t)	AUG DAILY DISCHARGE (m³/s)	AUG MEAN CONCENTRATION (mg/L)	AUG DAILY LOAD (t)	DAY
1	280	435 S	10 800	42.8	178 S	851	210	385 S	8 440	1
2	258	415 S	8 940	41.7	180 S	849	175	330 S	4 980	2
3	241	388 S	8 100	41.2	172 S	812	148	388 S	4 740	3
4	218	381 S	7 080	40.7	187 S	887	135	380 S	4 100	4
5	189	368 S	5 980	39.8	180 S	850	108	313 S	2 920	5
6	168	338 S	4 880	39.1	188 S	871	88.8	280 S	2 400	6
7	148	325 S	4 100	38.5	188 S	838	88.0	234 S	1 800	7
8	128	317 S	3 510	37.8	173 S	885	86.2	177 S	1 300	8
9	114	287 S	2 830	40.2	188 S	858	81.0	186 S	1 180	9
10	104	223 S	2 000	44.8	218 S	848	77.8	159 S	1 070	10
11	97.2	182 S	1 810	48.3	226 S	943	74.8	148 S	958	11
12	91.6	182 S	1 440	49.1	199 S	844	70.0	133 S	798	12
13	86.2	182 S	1 190	48.4	188 S	848	66.1	125 S	714	13
14	78.9	148 S	1 030	48.0	197 S	836	62.7	127 S	688	14
15	75.4	140 S	912	48.0	187 S	743	61.0	127 S	889	15
16	72.1	141 S	878	42.8	190 S	704	58.4	111 S	550	16
17	70.8	184 S	1 000	40.5	184 S	844	56.2	104 S	505	17
18	68.4	192 S	1 130	40.0	182 S	829	53.8	107 S	498	18
19	66.8	204 S	1 180	42.6	181 S	888	52.1	117 S	537	19
20	63.3	214 S	1 170	44.2	188 S	718	54.1	120 S	881	20
21	61.8	214 S	1 140	44.4	182 S	888	54.6	118 S	558	21
22	58.2	203 S	1 020	44.4	178 S	887	52.1	128 S	583	22
23	54.8	193 S	914	46.3	188 S	778	50.3	122 S	*30	23
24	51.8	218 S	980	52.0	551 S	2 480	48.0	110 S	488	24
25	50.5	225 S	882	117	1 830 S	18 500	45.8	87 S	388	25
26	48.3	210 S	878	205	1 880	33 800	43.1	92 S	343	26
27	47.6	204 S	838	258	1 740	38 500	41.0	86 S	337	27
28	47.0	191 S	778	285	1 380 S	33 200	38.5	88 S	328	28
29	45.2	186 S	762	281	780 S	18 600	38.5	88 S	318	29
30	43.4	182 S	688	280	522 S	12 800	37.8	103 S	338	30
31				249	423 S	9 100	37.1	108 S	340	31
TOTAL	3 127.8		78 988	2 727.8		181 423	2 293.2		61 889	TOTAL

B - ICE CONDITIONS

S - SAMPLE(S) COLLECTED THIS DAY

MANITOBA

RED RIVER AT EMERSON - STATION NO. 05OC001

SUSPENDED SEDIMENT FOR 1987

DAY	SEP DAILY DISCHARGE (m^3/s)	SEP MEAN CONCENTRATION (mg/L)	SEP DAILY LOAD (t)	OCT DAILY DISCHARGE (m^3/s)	OCT MEAN CONCENTRATION (mg/L)	OCT DAILY LOAD (t)	NOV DAILY DISCHARGE (m^3/s)	NOV MEAN CONCENTRATION (mg/L)	NOV DAILY LOAD (t)	DAY
1	37.0	105 S	336	30.7	173 S	459	23.8	35 S	51.4	1
2	37.1	107 S	343	30.4	159 S	418	24.4	35 S	52.7	2
3	37.9	115 S	377	31.2	175 S	472	24.7	35 S	53.4	3
4	38.6	105 S	350	30.5	144 S	379	25.0	35 S	54.0	4
5	38.8	103 S	345	28.5	135 S	332	24.7	30 S	64.0	5
6	38.0	109 S	358	27.8	133 S	319	24.6	38 S	80.8	6
7	36.0	97 S	302	27.3	115	271	24.4	28 S	58.0	7
8	33.3	87 S	278	26.3	87 S	198	23.8	38 S	72.3	8
9	30.8	88 S	282	24.7	103 S	220	23.2	45 S	90.2	9
10	29.4	100 S	254	24.2	86 S	180	23.9	28 S	53.7	10
11	27.8	98 S	235	23.8	86 S	136	24.0	18 S	37.3	11
12	27.5	100 S	238	22.9	86 S	111	24.2	18 S	37.6	12
13	27.2	104 S	244	22.0	82 S	118	24.3	18 S	33.6	13
14	27.2	99 S	233	21.0	84 S	116	24.0	18 S	33.2	14
15	27.1	98 S	229	20.4	84 S	95.2	23.6	17 S	34.7	15
16	27.0	104 S	243	20.5	80 S	88.6	23.1	19 S	37.9	16
17	27.0	100 S	233	20.8	44 S	78.1	22.9	21 S	41.5	17
18	27.1	120 S	281	21.0	45 S	81.8	22.8	19 S	37.4	18
19	27.8	106 S	255	21.2	44 S	87.9	23.8	27 S	55.1	19
20	28.0	93 S	225	21.3	37 S	68.1	27.4	39 S	92.3	20
21	29.0	89 S	248	21.1	42 S	78.8	25.0	30 S	64.8	21
22	30.7	104 S	275	20.6	37 S	65.9	23.2			22
23	31.3	107 S	289	20.2	34 S	58.3	25.0			23
24	31.2	108 S	291	20.3	34 S	59.6	23.7			24
25	31.1	100 S	269	20.4	29 S	51.1	22.2			25
26	31.3	103 S	279	20.8	31 S	55.7	21.6 E			26
27	31.7	107 S	293	21.2	37 S	67.8	21.2 E			27
28	31.7	109 S	299	21.8	40 S	75.3	21.8 E			28
29	31.5	105 S	285	22.0	38 S	74.1	22.7 E			29
30	31.4	107 S	290	21.8	32 S	60.5	23.1 E			30
31				22.7	28 S	55.9				31
TOTAL	941.7		8 443	728.8		4 832.3	712.1		1 138.9	TOTAL

RED RIVER AT EMERSON - STATION NO. 05DC001

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1987

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m³/s)		SINGLE SAMPLING VERTICAL (m)		TYPE OF SAMPLER	INSTANT. CONCENT. (mg/L)	DISSOLVED SOLIDS (mg/L)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	PERCENT SAND	SILT	CLAY
MAR 04	12:20	0.5	47.3	S	43.0	X	DH48	7	387														
APR 06	13:00	6.0	820	W	132		DH59	173	317														
APR 06	19:00	6.0	820	W	132		DH59	191	317														
APR 07	14:00	3.0	227		90.0	M	PS1	244	384	42	63	84	92	95	97	98	100						
APR 07	14:30	3.0	242		116	M	PS1	251	380	53	66	86	90	97	98	100					3	34	63
APR 07	14:40	3.0	189		132	M	PS1	286	337	55	67	82	91	95	98	99	100				2	32	66
APR 07	15:15	3.0	1020	H	132		PS1	253	344	59	67	84	93	95	98	99	100				2	31	67
APR 07	15:40	3.0	146		144	M	PS1	245	358	31	58	73	86	91	94	98	100				2	31	67
APR 07	18:05	3.0	183		156	M	PS1	286	350	40	55	78	88	93	98	98	100				5	38	58
APR 07	21:30	5.0	1020	H	132		DH59	233	344												4	41	55
APR 08	11:00	4.0	1080	H	132		DH59	340	349	53	70	88	92	97	97	99	100						
APR 08	18:30	5.0	1080	H	132		DH59	331	383	40	60	82	94	97	98	99	100				3	27	70
APR 09	10:00	5.0	1080	H	132		DH59	304	376	48	70	83	93	96	98	99	100				2	38	60
APR 09	18:30	5.0	1080	H	132		DH59	271	381	53	70	86	94	97	98	99	100				2	28	70
APR 10	08:30	5.0	1050	H	132		DH59	227	340												2	28	70
APR 10	11:10	5.0	183		88.0	M	PS1	226	361														
APR 10	11:15	5.0	183		88.0	M	PS1	227	367														
APR 10	11:20	5.0	195		108	M	PS1	225	366														
APR 10	11:25	5.0	195		108	M	PS1	226	355														
APR 10	11:30	5.0	163		122	M	PS1	230	369														
APR 10	11:35	5.0	163		122	M	PS1	238	381														
APR 10	11:40	5.0	231		132	M	PS1	239	380														
APR 10	11:45	5.0	231		132	M	PS1	234	360														
APR 10	11:50	5.0	231		132		PS1	227	357														
APR 10	11:55	5.0	231		132		PS1	225	367														
APR 10	12:00	5.0	274		154	M	PS1	230	380														
APR 10	12:05	5.0	274		154	M	PS1	225	384														
APR 11	08:00	5.0	1030	H	132		PS1	224															
APR 11	18:00	5.0	1030	H	132		DH59	184	357														
APR 11	18:01	5.0	1030	H	132		DH59	188	361														
APR 12	10:00	7.0	985	H	132		DH59	171															
APR 12	20:00	7.0	985	H	132		DH59	161															
APR 13	10:15	8.0	302		102	M	PS1	148	360														
APR 13	10:25	8.0	168		120	M	PS1	150	353														
APR 13	10:35	8.0	159		132	M	PS1	152	353														
APR 13	10:45	8.0	952	H	132		PS1	152	352														
APR 13	10:50	8.0	952	H	132		PS1	146	334														
APR 13	10:55	8.0	161		144	M	PS1	148	339														
APR 13	11:05	8.0	154		156	M	PS1	146	335														
APR 13	19:00	8.0	952	H	132		DH59	140															
APR 14	11:00	9.0	890	H	132		DH59	131															
APR 14	20:00	9.0	890	H	132		DH59	132															
APR 15	07:30	9.0	813	H	132		DH59	114															
APR 15	12:50	11.0	257		102	M	PS1	128															
APR 15	12:55	11.0	153		120	M	PS1	129	361														
APR 15	13:00	11.0	141		132	M	PS1	131	356														
APR 15	13:05	11.0	813	H	132		PS1	128	362														
APR 15	13:10	11.0	140		144	M	PS1	126	365														
APR 15	13:15	11.0	132		156	M	PS1	128	375														
APR 15	18:00	8.0	813	H	132		DH59	119															
APR 16	11:00	10.0	715	H	132		DH59	126															
APR 16	18:00	10.0	715	H	132		DH59	132															
APR 17	11:00	11.0	883	H	132		DH59	138															
APR 17	18:00	11.0	883	H	132		DH59	144															
APR 18	12:00	12.0	805	H	132		DH59	168															
APR 18	20:00	13.0	805	H	132		DH59	175															
APR 19	10:00	13.0	541	H	132		DH59	202															
APR 19	17:00	14.0	541	H	132		DH59	208															
APR 20	07:30	13.0	477	H	132		DH59	246															
APR 20	18:00	13.0	477	H	132		DH59	286															
APR 21	07:30	12.0	418	H	132		DH59	307															
APR 21	19:00	12.0	418	H	132		DH59	357															
APR 22	07:00	12.0	387	H	132		DH59	378															
APR 22	10:40	12.0	103		108	M	D48	442	502	28	45	65	74	84	90	94	98	100			10	45	45
APR 22	10:45	12.0	80.8		120	M	D48	428	504	28	48	65	82	88	94	97	100				8	48	44
APR 22	10:50	12.0	74.2		132	M	D48	426	473	34	52	71	84	91	96	98	100				4	44	52
APR 22	10:55	12.0	76.2		144	M	D48	426	503	35	52	71	82	93	97	100					3	45	52
APR 22	11:00	12.0	59.4		156	M	D48	425	488	35	54	71	86	92	98	100					3	44	54
APR 22	20:00	13.0	387	H	132		DH59	413	487														
APR 23	07:00	12.0	317	H	132		DH59	435															
APR 23	20:30	12.0	317	H	132		DH59	485															
APR 24	08:30	12.0	276	H	132		DH59	446															
APR 24	18:00	12.0	276	H	132		DH59	489															
APR 25	07:30	12.0	249	H	132		DH59	510															
APR 25	20:00	12.0	249	H	132		DH59	704															
APR 28	08:00	12.0	229	H	132		DH59	475															
APR 26	20:00	12.0	229	H	132		DH59	512															
APR 27	07:00	12.0	213	H	132		DH59	524															
APR 27	20:00	13.0	213	H	132		DH59	527															
APR 28	07:00	13.0	200	H	132		DH59	505															
APR 28	20:00	14.0	200	H	132		DH59	500															
APR 29	07:00	14.0	187	H	133		DH59	482	484														
APR 29	20:00	14.0	187	H	132		DH59	507															
APR 30	07:00	14.0	178	H	132		DH59	486															
APR 30	20:00	14.0	178	H	132		DH59	478															
MAY 01	08:00	14.0	170	H	132		DH59	448															
MAY 01	20:30	14.0	170	H	132		DH59	441															
MAY 02	07:00	14.0	158	H	132		DH59	418															
MAY 02	20:30	14.0	158	H	132		DH59	410															
MAY 03	07:00	14.0	147	H	132		DH59	404															
MAY 03	20:30	14.0	147	H	132		DH59	387															
MAY 04	07:00	14.0	137	H	132		DH59	378															
MAY 05	07:00	14.0	130	H	132		DH59	348															
MAY 06	07:00	15.0	123	H	132		DH59	341	503														
MAY 07	07:00	15.0	117	H	132		DH59	327															
MAY 08	10:00		112	H	132		DH59	308															
MAY 08	07:00	15.0	105	H	132		DH59	312															
MAY 10	08:00	16.0	98.3	H	132		DH59	281															
MAY 11	07:00	17.0	93.7	H	132		DH59	288															
MAY 12	08:00	17.0	89.5	H	132		DH59	278															
MAY 13	08:00	17.0	83.1	H	132		DH59	264	539														
MAY 14	07:00	17.0	77.8	H	132		DH59	250															

NOTE : SINGLE VERTICAL LOCATED AT 132 METRES FOR 1987

DISCHARGE SYMBOL(S): S - ICE CONDITIONS H - DAILY MEAN W - DAILY MEAN; ICE CONDITIONS

VERTICAL SYMBOL(S): M - A SEDIMENT MEASUREMENT VERTICAL X - NOT AT REGULAR SINGLE SAMPLE VERTICAL

CONTINUED

RED RIVER AT EMERSON - STATION NO. 05DC001 (CONTINUED)

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1987

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m³/s)		SINGLE VERTICAL (m)		TYPE OF SAMPLER	INSTANT. CONCENT. (mg/L)	DISSOLVED SOLIDS (mg/L)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	PERCENT SAND	SILT	CLAY
MAY 15	07:00	17.0	73.7	H	132		DH59	213															
MAY 16	10:00	18.0	70.2	H	132		DH59	193															
MAY 17	09:00		67.2	H	132		DH59	186															
MAY 18	09:00	15.0	65.1	H	132		DH59	185															
MAY 19	09:00	15.0	63.1	H	132		DH59	177															
MAY 20	08:00	15.0	61.8	H	132		DH59	176															
MAY 21	18:00	14.0	63.6	H	132		DH59	182	588														
MAY 22	21:00	14.0	66.6	H	132		DH59	171															
MAY 23	18:00	14.0	72.2	H	132		DH59	138															
MAY 24	18:00	15.0	80.1	H	132		DH59	143															
MAY 25	20:00	15.0	108	H	132		DH59	188															
MAY 26	08:00	15.0	182	H	132		DH59	278															
MAY 27	05:00	15.0	195	H	132		DH59	485															
MAY 27	10:20	16.0	46.4		100	M	DH59	504	487	27	45	86	81	95	97	99	100				3	52	45
MAY 27	10:25	16.0	38.2		116	M	DH59	526	488	26	42	85	80	93	96	99	100				4	54	42
MAY 27	10:30	16.0	51.3		132	M	DH59	531	495	33	43	85	83	95	98	99	100				2	55	43
MAY 27	10:35	16.0	42.8		144	M	DH59	535	515	28	39	86	80	92	95	97	99	100			5	56	39
MAY 27	10:40	16.0	19.5		160	M	DH59	518	514	29	42	86	81	90	94	98	99	100			6	52	42
MAY 28	08:30	15.0	204	H	132		DH59	784															
MAY 29	10:00		211	H	132		DH59	492															
MAY 30	09:00	16.0	242	H	132		DH59	489															
MAY 31	09:30	17.0	274	H	132		DH59	445															
JUN 01	21:00	18.0	280	H	132		DH59	441															
JUN 01	21:05	18.0	280	H	132		DH59	444															
JUN 02	21:00	19.0	286	H	132		DH59	408															
JUN 02	21:01	18.0	288	H	132		DH59	409															
JUN 03	09:30	18.0	241	H	132		DH59	384	505														
JUN 04	12:30	18.0	215	H	132		DH59	383															
JUN 05	12:30	18.0	188	H	132		DH59	378															
JUN 06	10:00	19.0	166	H	132		DH59	346															
JUN 07	18:00	21.0	145	H	132		DH59	331															
JUN 08	18:30	21.0	128	H	132		DH59	322															
JUN 09	12:00	21.0	114	H	132		DH59	287															
JUN 10	20:00	20.0	104	H	132		DH59	210	562														
JUN 11	20:45	21.0	97.2	H	132		DH59	188															
JUN 12	21:30	23.0	91.5	H	132		DH59	171															
JUN 12	21:30	23.0	91.5	H	132		DH59	173															
JUN 13	21:30	25.0	85.2	H	132		DH59	161															
JUN 14	20:30	25.0	78.9	H	132		DH59	146															
JUN 15	20:00	25.0	75.4	H	132		DH59	146	544														
JUN 16	11:40	25.0	15.6		104	M	DH59	136	580														
JUN 16	11:45	25.0	12.9		120	M	DH59	141	574														
JUN 16	11:50	25.0	10.9		132	M	DH59	145	581														
JUN 16	11:55	25.0	10.8		144	M	DH59	137	576														
JUN 16	12:00	25.0	7.70		156	M	DH59	144	582														
JUN 16	21:00	25.0	72.1	H	132		DH59	142															
JUN 17	20:30	25.0	70.6	H	132		DH59	189															
JUN 18	20:45	26.0	68.4	H	132		DH59	201															
JUN 19	21:15	26.0	65.9	H	132		DH59	220															
JUN 20	20:20	27.0	63.3	H	132		DH59	223															
JUN 21	20:45	28.0	61.6	H	132		DH59	223															
JUN 22	20:45	29.0	58.2	H	132		DH59	203	518														
JUN 23	20:45	29.0	54.8	H	132		DH59	200															
JUN 24	21:00	29.0	51.8	H	132		DH59	245															
JUN 25	18:00	29.0	50.5	H	132		DH59	225															
JUN 25	21:00	24.0	46.3	H	132		DH59	220															
JUN 27	21:00	23.0	47.6	H	132		DH59	197															
JUN 28	21:00	23.0	47.0	H	132		DH59	201															
JUN 29	21:00	23.0	46.2	H	132		DH59	201	552														
JUN 30	18:30	23.0	43.8	H	132		DH59	186															
JUL 01	21:15	23.0	42.8	H	132		DH59	184															
JUL 02	21:15	23.0	41.7	H	132		DH59	182															
JUL 03	21:15	23.0	41.2	H	132		DH59	172															
JUL 04	21:15	23.0	40.7	H	132		DH59	176															
JUL 05	17:30	24.0	38.6	H	132		DH59	186	592														
JUL 06	09:00	25.0	38.1	H	132		DH59	185															
JUL 07	21:00	25.0	38.5	H	132		DH59	183															
JUL 08	21:00	25.0	37.6	H	132		DH59	188															
JUL 09	21:00	25.0	40.2	H	132		DH59	203															
JUL 10	21:00	25.0	44.8	H	132		DH59	247															
JUL 11	21:15	22.0	46.3	H	132		DH59	225															
JUL 12	18:00	22.0	48.1	H	132		DH59	208	528														
JUL 13	20:00	22.0	49.4	H	132		DH59	218															
JUL 14	20:00	22.0	48.0	H	132		DH59	201	530														
JUL 15	21:00	24.0	46.0	H	132		DH59	202															
JUL 16	21:00	24.0	42.8	H	132		DH59	198															
JUL 17	21:00	24.0	40.5	H	132		DH59	200															
JUL 18	21:00	24.0	40.0	H	132		DH59	191															
JUL 19	21:15	23.0	42.6	H	132		DH59	201															
JUL 20	21:00	24.0	44.2	H	132		DH59	196															
JUL 21	21:15	22.0	44.4	H	132		DH59	192	468														
JUL 22	20:00	22.0	44.4	H	132		DH59	183															
JUL 23	09:00	23.0	45.3	H	132		DH59	202															
JUL 23	09:40	22.0	8.71		104	M	DH59	187	451														
JUL 23	09:45	22.0	7.48		124	M	DH59	196	480														
JUL 23	09:50	22.0	10.8		132	M	DH59	208	462														
JUL 23	09:55	22.0	10.3		141	M	DH59	191	457														
JUL 23	10:00	22.0	10.1		150	M	DH59	181	466														
JUL 24	08:00	23.0	52.0	H	132		DH59	264	462														
JUL 25	09:00	23.0	117	H	132		DH59	1630	456	10	23	63	72	94	98	100					1	76	23
JUL 28	11:51	26.0	67.8		98.0	M	P61	1400	223	36	60	76	88	97	98	100					1	39	60
JUL 28	12:15	26.0	66.8		120	M	P61	1400	231	36	58	76	88	98	98	99	100				2	42	56
JUL 28	12:35	26.0	64.4		132	M	P61	1380	231	30	58	75	88	97	98	99	100				2	40	58
JUL 28	12:55	26.0	61.4		140	M	P61	1360	233	37	61	77	89	97	98	100					1	38	61
JUL 28	13:12	26.0	59.4		152	M	P61	1350	240	36	61	76	89	95	98	99	100				2	37	61
JUL 28	21:15	26.0	285	H	132		DH59	1120	237														
JUL 28	21:16	26.0	285	H	132		DH59	1100	235														
JUL 29	09:00	26.0	281	H	132		DH59	787	263														
JUL 29	08:01	26.0	281	H	132		DH59	610	266														
JUL 29	20:00	26.0	281	H	132		DH59	668	266														
JUL 29	20:01	26.0	281	H	132		DH59	661	266														

NOTE : SINGLE VERTICAL LOCATED AT 132 METRES FOR 1987

DISCHARGE SYMBOL(S): H - DAILY MEAN
VERTICAL SYMBOL(S): M - A SEDIMENT MEASUREMENT VERTICAL

CONTINUED

RED RIVER AT EMERSON - STATION NO. 05OC001 (CONTINUED)

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1987

DATE	TIME	WATER TEMP (°C)	INSTANT. DISCHARGE (m³/s)		SINGLE SAMPLING VERTICAL (m)		TYPE OF SAMPLER	INSTANT. CONCENT. (mg/L)	DISSOLVED SOLIDS (mg/L)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	PERCENT SAND	SILT	CLAY
JUL 30	10:00	26.0	280		H 132		DHS9	551	272														
JUL 30	10:01	26.0	280		H 132		DHS9	553	271														
JUL 30	19:00	26.0	280		H 132		DHS9	489	279														
JUL 30	19:01	26.0	280		H 132		DHS9	507	281														
JUL 31	21:00	25.0	249		H 132		DHS9	382															
AUG 01	10:00	25.0	210		H 132		DHS9	359															
AUG 02	07:30	26.0	175		H 132		DHS9	319															
AUG 02	21:00	27.0	175		H 132		DHS9	349															
AUG 03	07:30	27.0	148		H 132		DHS9	334															
AUG 03	20:30	26.0	148		H 132		DHS9	410															
AUG 04	07:30	25.0	125		H 132		DHS9	388															
AUG 04	20:45	25.0	125		H 132		DHS9	352															
AUG 05	07:00	24.0	108		H 132		DHS9	315	435														
AUG 06	07:30	24.0	95.9		H 132		DHS9	280															
AUG 06	21:15	23.0	95.9		H 132		DHS9	286															
AUG 07	07:30	23.0	89.0		H 132		DHS9	237															
AUG 07	21:00	24.0	89.0		H 132		DHS9	214															
AUG 08	10:00	24.0	85.2		H 132		DHS9	185															
AUG 08	19:00	24.0	85.2		H 132		DHS9	167															
AUG 09	09:30	23.0	81.0		H 132		DHS9	168															
AUG 10	08:00	23.0	77.9		H 132		DHS9	157															
AUG 11	07:30	23.0	74.5		H 132		DHS9	150															
AUG 12	20:00	23.0	70.0		H 132		DHS9	122	513														
AUG 13	20:00	22.0	65.1		H 132		DHS9	118															
AUG 14	18:00	22.0	62.7		H 132		DHS9	126															
AUG 15	18:00	21.0	61.0		H 132		DHS9	128															
AUG 16	19:00	21.0	58.4		H 132		DHS9	102															
AUG 17	21:00	21.0	56.2		H 132		DHS9	99															
AUG 18	13:30	20.0	53.6		H 132		DHS9	102															
AUG 19	07:00	19.0	52.1		H 132		DHS9	123	525														
AUG 20	08:00	19.0	54.1		H 132		DHS9	120															
AUG 21	10:00	20.0	54.4		H 132		DHS9	118															
AUG 22	09:00	20.0	52.1		H 132		DHS9	128															
AUG 23	09:00	19.0	50.3		H 132		DHS9	122															
AUG 24	08:00	19.0	48.0		H 132		DHS9	111															
AUG 25	07:30	19.0	45.9		H 132		DHS9	96	494														
AUG 26	07:30	19.0	43.1		H 132		DHS9	86															
AUG 26	10:00	20.0	11.2		124	M	DHS9	92	501														
AUG 26	10:05	20.0	8.20		132	M	DHS9	96	487														
AUG 26	10:10	20.0	5.40		138	M	DHS9	88	501														
AUG 26	10:15	20.0	10.9		144	M	DHS9	93	496														
AUG 26	10:20	20.0	8.10		152	M	DHS9	91	491														
AUG 27	07:30	19.0	41.0	H	132		DHS9	85															
AUG 28	07:30	19.0	38.5	H	132		DHS9	97															
AUG 28	09:00	19.0	38.5	H	132		DHS9	94															
AUG 30	09:00	18.0	37.8	H	132		DHS9	104															
AUG 31	08:00	18.0	37.1	H	132		DHS9	107															
SEP 01	08:00	18.0	37.0	H	132		DHS9	106	470														
SEP 02	07:30	18.0	37.1	H	132		DHS9	107															
SEP 03	09:00	18.0	37.8	H	132		DHS9	116															
SEP 04	07:30	18.0	38.5	H	132		DHS9	107															
SEP 05	20:00	18.0	38.5	H	132		DHS9	110															
SEP 06	08:30	18.0	38.0	H	132		DHS9	113	472														
SEP 07	10:00	18.0	36.0	H	132		DHS9	87															
SEP 08	09:00	17.0	33.3	H	132		DHS9	88															
SEP 08	10:30	17.0	30.9	H	132		DHS9	88															
SEP 10	11:30	17.0	28.4	H	132		DHS9	101															
SEP 11	08:00	17.0	27.8	H	132		DHS9	98															
SEP 12	10:00	17.0	27.5	H	132		DHS9	100															
SEP 13	20:00	17.0	27.2	H	132		DHS9	106	481														
SEP 14	20:00	17.0	27.2	H	132		DHS9	84															
SEP 15	18:00	18.0	27.1	H	132		DHS9	99															
SEP 16	18:30	18.0	27.0	H	132		DHS9	108	481														
SEP 17	11:00	16.0	27.0	H	132		DHS9	88															
SEP 18	17:00	17.0	27.1	H	132		DHS9	130															
SEP 18	10:00	16.0	27.8	H	132		DHS9	107															
SEP 20	10:00	16.0	28.0	H	132		DHS9	91															
SEP 21	08:30	16.0	28.0	H	132		DHS9	99	488														
SEP 22	11:00	17.0	6.40		123	M	DHS9	101	488														
SEP 22	11:05	17.0	6.85		132	M	DHS9	108	462														
SEP 22	11:10	17.0	2.47		139	M	DHS9	107	479														
SEP 22	11:15	17.0	6.19		144	M	DHS9	108	474														
SEP 22	11:20	17.0	5.87		150	M	DHS9	105	478														
SEP 22	19:30	15.0	30.7	H	132		DHS9	104															
SEP 23	08:30	15.0	31.3	H	132		DHS9	108															
SEP 24	19:00	15.0	31.2	H	132		DHS9	108															
SEP 25	19:00	15.0	31.1	H	132		DHS9	100															
SEP 26	19:00	14.0	31.3	H	132		DHS9	105	541														
SEP 27	19:00	14.0	31.7	H	132		DHS9	108															
SEP 28	19:00	15.0	31.7	H	132		DHS9	108															
SEP 29	18:00	15.0	31.5	H	132		DHS9	103															
SEP 30	18:00	13.0	31.4	H	132		DHS9	108															
OCT 01	18:00	13.0	30.7	H	132		DHS9	108															
OCT 02	18:00	12.0	30.4	H	132		DHS9	149	480														
OCT 03	18:00	12.0	31.2	H	132		DHS9	106															
OCT 04	18:00	12.0	30.5	H	132		DHS9	122															
OCT 05	18:00	12.0	28.5	H	132		DHS9	140															
OCT 06	18:00	11.0	27.8	H	132		DHS9	133															
OCT 08	18:00	11.0	28.5	H	132		DHS9	78															
OCT 09	18:00	12.0	24.7	H	132		DHS9	116	530														
OCT 10	18:00	12.0	24.2	H	132		DHS9	70															
OCT 11	18:00	12.0	23.5	H	132		DHS9	88															
OCT 12	18:00	12.0	22.8	H	132		DHS9	80															
OCT 13	18:00	9.0	22.0	H	132		DHS9	70															
OCT 14	18:00	8.0	21.0	H	132		DHS9	82															
OCT 15	18:00	8.0	20.4	H	132		DHS9	82															
OCT 16	18:00	8.0	20.5	H	132		DHS9	49	544														
OCT 17	18:00	8.0	20.8	H	132		DHS9	48															
OCT 18	18:00	8.0	21.0	H	132		DHS9	47															
OCT 19	17:00	8.0	21.2	H	132		DHS9	48															
OCT 20	17:00	5.0	21.3	H	132		DHS9	33															
OCT 21	17:00	4.0	21.1	H	132		DHS9	43															

NOTE : SINGLE VERTICAL LOCATED AT 132 METRES FOR 1987

DISCHARGE SYMBOL(S): H - DAILY MEAN
VERTICAL SYMBOL(S): M - A SEDIMENT MEASUREMENT VERTICAL

CONTINUED

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RED RIVER AT EMERSON - STATION NO. 05OC001 (CONTINUED)

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1987

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m³/s)		SINGLE SAMPLING VERTICAL (m)		TYPE OF SAMPLER	INSTANT. CONCENT. (mg/L)	DISSOLVED SOLIDS (mg/L)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	PERCENT SAND	SILT	CLAY
OCT 22	17:00	4.0	20.8	H	132		DH59	37															
OCT 23	09:10	3.0	3.18		126	M	DH59	34	502														
OCT 23	09:15	3.0	4.03		132	M	DH59	34	486														
OCT 23	09:20	3.0	1.73		136	M	DH59	61	488														
OCT 23	09:25	3.0	4.78		142	M	DH59	32	487														
OCT 23	09:30	3.0	5.77		148	M	DH59	33	487														
OCT 23	18:00	4.0	20.2	H	132		DH59	35	489														
OCT 24	18:00	4.0	20.3	H	132		DH59	33															
OCT 25	18:00	4.0	20.4	H	132		DH59	27															
OCT 26	18:00	4.0	20.8	H	132		DH59	32															
OCT 27	18:00	4.0	21.2	H	132		DH59	36															
OCT 28	18:00	4.0	21.8	H	132		DH59	40															
OCT 29	18:00	5.0	22.0	H	132		DH59	36															
OCT 30	18:00	5.0	21.8	H	132		DH59	29	587														
OCT 31	18:00	5.0	22.7	H	132		DH59	30															
NOV 01	18:00	5.0	23.8	H	132		DH59	25															
NOV 02	17:00	6.0	24.4	H	132		DH59	26															
NOV 03	17:00	6.0	24.7	H	132		DH59	26															
NOV 04	17:00	6.0	25.0	H	132		DH59	27															
NOV 05	17:00	5.5	24.7	H	132		DH59	32															
NOV 06	17:00	5.5	24.6	H	132		DH59	41	577														
NOV 07	17:00	5.5	24.4	H	132		DH59	25															
NOV 08	17:00	5.5	23.9	H	132		DH59	42															
NOV 09	17:00	4.0	23.2	H	132		DH59	43															
NOV 10	17:00	4.0	23.5	H	132		DH59	21															
NOV 11	17:00	4.0	24.0	H	132		DH59	20															
NOV 12	17:00	4.0	24.2	H	132		DH59	16															
NOV 13	17:00	4.0	24.3	H	132		DH59	17	678														
NOV 14	17:00	4.0	24.0	H	132		DH59	17															
NOV 15	17:00	4.0	23.6	H	132		DH59	17															
NOV 16	17:00	3.0	23.1	H	132		DH59	20															
NOV 17	17:00	1.0	22.8	H	132		DH59	22															
NOV 18	17:00	1.0	22.8	H	132		DH59	18															
NOV 19	17:00	1.0	23.6	H	132		DH59	30															
NOV 20	17:00	1.0	27.4	H	132		DH59	38	636														
NOV 21	17:00	1.0	25.0	H	132		DH59	28															
NOV 22	17:00	1.0	23.2	H	132		DH59	25	625														

NOTE : SINGLE VERTICAL LOCATED AT 132 METRES FOR 1987

DISCHARGE SYMBOL(S): H - DAILY MEAN
VERTICAL SYMBOL(S): M - A SEDIMENT MEASUREMENT VERTICAL

RED RIVER AT EMERSON - STATION NO. 05OC001

POINT INTEGRATING PARTICLE-SIZE ANALYSIS OF SUSPENDED SEDIMENT FOR 1987

DATE	TIME	WATER TEMP. (°C)	PANEL DISCHARGE (m^3/s)	SAMPLING VERTICAL (m)	DEPTH OF SAMPLE (m)	CONCENT. OF SAMPLE (mg/L)	DISSOLVED SOLIDS (mg/L)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	PERCENT SAND	SILT	CLAY
APR 07	14:00	3.0	227	90.0	9.80	286	347	DATA NOT AVAILABLE													
APR 07	14:05	3.0	227	90.0	9.40	243	348	DATA NOT AVAILABLE													
APR 07	14:10	3.0	227	90.0	8.38	243	342	DATA NOT AVAILABLE													
APR 07	14:15	3.0	227	90.0	6.17	234	347	DATA NOT AVAILABLE													
APR 07	14:20	3.0	227	90.0	4.18	230	348	DATA NOT AVAILABLE													
APR 07	14:25	3.0	227	90.0	2.09	240	345	DATA NOT AVAILABLE													
APR 07	14:30	3.0	227	90.0	0.30	248	345	DATA NOT AVAILABLE													
APR 07	14:35	3.0	242	116	10.4	244	347	DATA NOT AVAILABLE													
APR 07	14:40	3.0	242	116	10.0	242	346	DATA NOT AVAILABLE													
APR 07	14:45	3.0	242	116	8.92	240	352	DATA NOT AVAILABLE													
APR 07	14:50	3.0	242	116	6.89	239	347	DATA NOT AVAILABLE													
APR 07	14:51	3.0	242	116	4.46	240	359	DATA NOT AVAILABLE													
APR 07	14:55	3.0	242	116	2.23	241	346	DATA NOT AVAILABLE													
APR 07	15:00	3.0	242	116	0.30	242	345	DATA NOT AVAILABLE													
APR 07	15:05	3.0	189	132	12.5	278	349	DATA NOT AVAILABLE													
APR 07	15:10	3.0	189	132	11.8	261	348	DATA NOT AVAILABLE													
APR 07	15:15	3.0	189	132	10.5	265	345	DATA NOT AVAILABLE													
APR 07	15:20	3.0	189	132	7.86	255	340	DATA NOT AVAILABLE													
APR 07	15:25	3.0	189	132	5.24	254	346	DATA NOT AVAILABLE													
APR 07	15:30	3.0	189	132	2.62	254	345	DATA NOT AVAILABLE													
APR 07	15:35	3.0	189	132	0.30	244	371	DATA NOT AVAILABLE													
APR 07	15:40	3.0	148	144	12.5	268	363	DATA NOT AVAILABLE													
APR 07	15:42	3.0	148	144	11.7	261	357	DATA NOT AVAILABLE													
APR 07	15:44	3.0	148	144	10.4	256	364	DATA NOT AVAILABLE													
APR 07	15:46	3.0	148	144	7.80	246	373	DATA NOT AVAILABLE													
APR 07	15:48	3.0	148	144	5.20	250	385	DATA NOT AVAILABLE													
APR 07	15:50	3.0	148	144	2.60	245	388	DATA NOT AVAILABLE													
APR 07	15:52	3.0	148	144	0.30	252	364	DATA NOT AVAILABLE													
APR 07	15:54	3.0	183	156	10.8	282	367	DATA NOT AVAILABLE													
APR 07	15:55	3.0	183	156	10.2	267	368	DATA NOT AVAILABLE													
APR 07	15:56	3.0	183	156	9.08	253	362	DATA NOT AVAILABLE													
APR 07	15:57	3.0	183	156	6.81	252	375	DATA NOT AVAILABLE													
APR 07	15:58	3.0	183	156	4.54	250	361	DATA NOT AVAILABLE													
APR 07	15:59	3.0	183	156	2.27	249	352	DATA NOT AVAILABLE													
APR 07	16:00	3.0	183	156	0.30	241	360	DATA NOT AVAILABLE													
JUL 28	11:15	26.0	57.6	98.0	3.90	1480	225	45	59	77	87	95	98	100					2	38	59
JUL 28	11:20	26.0	57.6	98.0	3.20	1440	235	45	58	77	86	95	98	100					2	40	58
JUL 28	11:22	26.0	57.6	98.0	2.40	1430	218	45	60	78	88	97	98	100					1	39	60
JUL 28	11:51	26.0	57.6	98.0	1.20	1400	224	44	56	73	85	94	97	99	100				3	38	59
JUL 28	11:53	26.0	57.6	98.0	0.20	1410	223	45	57	74	84	94	97	99	100				3	40	57
JUL 28	12:05	26.0	56.8	120	4.35	1520	237	42	57	73	82	94	95	98	100				5	38	57
JUL 28	12:10	26.0	56.8	120	4.05	1370	274	45	56	76	84	95	97	99	100				3	41	56
JUL 28	12:11	26.0	56.8	120	2.97	1340	261	41	58	78	87	97	98	100					2	40	58
JUL 28	12:13	26.0	56.8	120	1.48	1330	222	48	61	78	88	97	98	99	100				2	37	61
JUL 28	12:13	26.0	56.8	120	0.20	1340	230	42	58	76	85	95	97	99	100				3	39	58
JUL 28	12:22	26.0	54.4	132	5.70	1400	227	41	58	76	85	93	96	98	100				4	38	58
JUL 28	12:24	26.0	54.4	132	4.54	1400	227	45	58	76	85	94	97	99	100				3	38	59
JUL 28	12:26	26.0	54.4	132	3.48	1430	230	40	62	76	87	96	98	99	100				2	38	60
JUL 28	12:28	26.0	54.4	132	1.74	1340	229	44	60	77	90	97	99	100					1	39	60
JUL 28	12:34	26.0	54.4	132	0.20	1330	237	44	61	79	90	98	99	100					1	38	61
JUL 28	12:41	26.0	51.4	140	5.10	1400	223	44	58	76	82	92	95	97	99	100			5	37	58
JUL 28	12:44	26.0	51.4	140	5.58	1400	231	40	58	72	81	91	93	98	99	100			7	35	58
JUL 28	12:48	26.0	51.4	140	4.86	1370	227	43	58	74	85	91	94	98	98	100			6	35	59
JUL 28	12:48	26.0	51.4	140	3.72	1370	248	45	62	78	88	97	98	99	100				2	38	62
JUL 28	12:50	26.0	51.4	140	2.46	1330	248	45	59	77	85	95	97	99	100				3	38	59
JUL 28	12:54	26.0	51.4	140	1.24	1310	248	45	58	78	88	96	98	99	100				2	40	58
JUL 28	12:58	26.0	51.4	140	0.20	1270	249	42	54	76	86	96	98	99	100				2	44	54
JUL 28	13:02	26.0	59.4	152	4.86	1320	238	41	52	71	83	91	95	98	100				5	43	52
JUL 28	13:04	26.0	59.4	152	3.72	1370	247	43	54	73	85	92	96	98	100				4	42	54
JUL 28	13:06	26.0	59.4	152	2.60	1380	238	44	57	74	86	94	96	98	99	100			4	39	57
JUL 28	13:08	26.0	59.4	152	1.30	1300	229	50	60	78	88	96	98	99	100				2	38	60
JUL 28	13:10	26.0	59.4	152	0.20	1290	224	46	60	77	88	96	98	99	100				2	38	60

NOTE : SINGLE VERTICAL LOCATED AT 132 METRES FOR 1987

MANITOBA

RED RIVER AT EMERSON - STATION NO. 05OC001

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF OPERATION SUMMARY (JFMAMJJASOND)	TYPE OF SAMPLING	SAMPLED CONCENTRATION MAXIMUM (mg/L)		SAMPLED CONCENTRATION MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		SUSPENDED SEDIMENT LOAD TOTAL FOR PERIOD (TONNES)	SUMMARY : JAN-DEC MEAN LOAD (TONNES)	SUMMARY : JAN-DEC HISTORICAL MEAN LOAD (TONNES)	SUMMARY : JAN-DEC STANDARD ERROR OF MEAN %
1956	---PC-------	MANUAL	885	APR 21	285	MAY 10	39 300	APR 23	888 000	---	---	---
1961	---P--------	MANUAL	310	APR 18	130	APR 25	1 570	APR 18	7 910	---	---	---
1978	CCCCCCCCCCCC	MANUAL	733	JUL 17	18	FEB 08	55 100	APR 11 *	1 130 000	3 100	3 100	---
1979	CCCCCCCCCCCC	MANUAL	523	JUL 07	12	JAN 23	48 800	APR 26	1 800 000 *	4 120	3 810	14.1
1980	CCCCCCCCCCCC	MANUAL	858	APR 08	10	FEB 12	33 400	APR 08	388 000	1 010	2 740	33.4
1981	CCCCCCCCCCCC	MANUAL	1 880	MAY 30	5	JAN 16	22 000	JUL 03	372 000	1 020	2 310	33.7
1982	CCCCCCCCCCCC	MANUAL	881	JUN 09	8	JAN 06	33 200	APR 17	846 000	2 320	2 310	26.1
1983	CCCCCCCCCCCC	MANUAL	886	JUN 18	4	FEB 07 *	23 200	APR 09	782 000	2 080	2 280	21.8
1984	CCCCCCCCCCCC	MANUAL	851	JUN 12	10	JAN 5	32 700	JUN 13	732 000	2 000	2 240	18.7
1985	CCCCCCCCCCCC	MANUAL	1 530	MAY 17 *	8	DEC 5	54 000	MAY 17	1 210 000	3 310	2 370	18.3
1986	CCCCCCCCCCCC	MANUAL	844	OCT 3	10	FEB 17	25 800	MAR 31	1 050 000	2 870	2 430	14.2
1987	--CCCCCCCCP-	MANUAL	1 830	JUL 25	7	MAR 4	38 500	JUL 27	818 000	---	---	---

MANUAL - MANUAL SAMPLING

C - COMPLETE MONTH P - PARTIAL MONTH * - EXTREME FOR PERIOD OF RECORD

MANITOBA

RED RIVER NEAR LOCKPORT - STATION NO. 05OJ010

SUSPENDED SEDIMENT FOR 1987

LOCATION: LAT 50 05 28 N LONG 96 55 54 W
DRAINAGE AREA: 287 000 km²
TYPE OF FLOW: REGULATED
TYPE OF GAUGE: RECORDING

TOTAL SUSPENDED SEDIMENT LOAD 1 250 000 TONNES FOR THE PERIOD MAR 01 TO DEC 31

REMARKS: DEC. 1987, NOV, DEC, JAN & FEB SAMPLED ONLY ABOVE SPECIFIED FLOWS

DAY	MAR DAILY DISCHARGE (m³/s)	MAR MEAN CONCENTRATION (mg/L)	MAR DAILY LOAD (t)	APR DAILY DISCHARGE (m³/s)	APR MEAN CONCENTRATION (mg/L)	APR DAILY LOAD (t)	MAY DAILY DISCHARGE (m³/s)	MAY MEAN CONCENTRATION (mg/L)	MAY DAILY LOAD (t)	DAY
1	88.8 B	10	59.4	550 B	131	6 230	357	188 S	6 110	1
2	88.2 B	11	85.8	800 B	184	8 500	333	180 S	4 600	2
3	89.1 B	11	85.7	850 B	217	12 200	308	124 S	3 300	3
4	89.6 B	11	88.1	700 B	281 S	17 000	280	80 S	2 280	4
5	89.9 B	11	88.4	1 000 B	328	28 200	272	73 S	1 720	5
6	89.7 B	11	88.2	1 400 B	409	49 500	258	58 S	1 280	6
7	87.9 B	11	88.4	1 850 B	551	88 100	242	49 S	1 020	7
8	70.3 B	11	88.8	2 120	771 S	141 000	230	48 S	914	8
9	72.0 B	10	82.2	2 120	542 S	89 300	221	40 S	784	9
10	71.0 B	11	70.3	2 050	470 S	83 200	208	39 S	701	10
11	75.0 B	11	71.3	1 970	494 S	84 100	201	45 S	781	11
12	78.8 B	11 S	74.7	1 880	388 S	84 000	181	182 S	2 610	12
13	100 B	13	112	1 780	338 S	51 400	181	76 S	1 170	13
14	150 B	13	184	1 880	320 S	46 400	174	39 S	585	14
15	200 B	12	207	1 880	305 S	41 800	187	36 S	519	15
16	220 B	11	209	1 480	285 S	36 700	158	31 S	433	16
17	228 B	13	256	1 370	271 S	32 100	148	32 S	408	17
18	228 B	14	273	1 289	280 S	27 200	142	31 S	380	18
19	224 B	13	252	1 180	248 S	24 700	138	30 S	358	19
20	220 B	12	228	1 070	258 S	23 700	133	26 S	322	20
21	218 B	12	228	988	285 S	21 300	130	34 S	382	21
22	216 B	13	243	920	280 S	17 800	126	32 S	348	22
23	220 B	12	228	730	244 S	15 400	120	23 S	238	23
24	235 B	13	264	828	247 S	13 400	119	24 S	247	24
25	255 B	9	198	584	280 S	13 100	127	22 S	241	25
26	275 B	17	404	520	273 S	12 300	151	23 S	300	26
27	310 B	29	777	480	272 S	11 300	186	33 S	585	27
28	360 B	49	1 480	428	307 S	11 300	239	36 S	743	28
29	400 B	67	2 320	397	284 S	9 880	258	38 S	882	29
30	450 B	78	3 030	377	248 S	8 010	272	31 S	728	30
31	500 B	102	4 410				282	38 S	908	31
TOTAL	6 853.1		15 085.3	34 179		1 099 020	6 382		35 408	TOTAL

DAY	JUN DAILY DISCHARGE (m³/s)	JUN MEAN CONCENTRATION (mg/L)	JUN DAILY LOAD (t)	JUL DAILY DISCHARGE (m³/s)	JUL MEAN CONCENTRATION (mg/L)	JUL DAILY LOAD (t)	AUG DAILY DISCHARGE (m³/s)	AUG MEAN CONCENTRATION (mg/L)	AUG DAILY LOAD (t)	DAY
1	312	80 S	2 430	70.0	43 S	260	277	310 S	7 420	1
2	316	142 S	3 910	88.4	81 S	301	252	228 S	4 880	2
3	316	116 S	3 180	87.2	48 S	281	220	188 S	3 570	3
4	301	95 S	2 470	68.3	37 S	212	190	167 S	2 740	4
5	278	78 S	1 800	85.7	42 S	238	182	148 S	2 040	5
6	256	82 S	1 380	83.8	48 S	254	140	127 S	1 540	6
7	236	81 S	1 240	82.7	48 S	248	126	87 S	947	7
8	209	80 S	1 080	81.8	55 S	293	116	68 S	874	8
9	185	81 S	815	80.9	43 S	228	107	89 S	823	9
10	168	84 S	784	83.0	38 S	207	102	78 S	987	10
11	155	81 S	817	87.2	48 S	287	98.2	80 S	888	11
12	143	49 S	605	72.2	48 S	267	86.6	45 S	271	12
13	136	43 S	505	76.9	51 S	334	81.2	37 S	292	13
14	129	33 S	368	78.3	48 S	318	83.6	35 S	283	14
15	121	39 S	408	78.7	50 S	340	122	44 S	484	15
16	116	42 S	421	77.1	48 S	320	128	43 S	484	16
17	114	34 S	335	76.3	37 S	241	121	30 S	314	17
18	110	36 S	333	72.6	34 S	213	128	30 S	324	18
19	108	29 S	263	76.0	69 S	485	120	36 S	394	19
20	101	38 S	332	73.7	57 S	383	107	38 S	333	20
21	88.4	47 S	381	72.0	38 S	224	94.1	45 S	358	21
22	83.2	41 S	330	73.4	44 S	279	86.8	53 S	397	22
23	88.9	33 S	255	76.3	37 S	241	83.2	38 S	259	23
24	85.1	34 S	255	77.8	31 S	208	80.3	35 S	243	24
25	78.3	31 S	212	138	39 S	456	76.9	30 S	199	25
26	77.8	31 S	208	225	63 S	1 020	72.4	31 S	194	26
27	76.8	25 S	164	294	53 S	1 350	67.8	31 S	182	27
28	73.8	23 S	147	313	61 S	1 650	63.7	31 S	171	28
29	72.8	40 S	251	307	102 S	2 710	59.2	34 S	174	29
30	72.0	42 S	261	298	144 S	3 710	57.0	35 S	172	30
31				294	285 S	6 730	54.9	32 S	152	31
TOTAL	4 827.8		25 041	3 586.3		24 237	3 586.7		32 055	TOTAL

B - ICE CONDITIONS

S - SAMPLE(S) COLLECTED THIS DAY

MANITOBA

RED RIVER NEAR LOCKPORT - STATION NO. 05OJ010

SUSPENDED SEDIMENT FOR 1987

DAY	SEP DAILY DISCHARGE (m^3/s)	SEP MEAN CONCENTRATION (mg/L)	SEP DAILY LOAD (t)	OCT DAILY DISCHARGE (m^3/s)	OCT MEAN CONCENTRATION (mg/L)	OCT DAILY LOAD (t)	NOV DAILY DISCHARGE (m^3/s)	NOV MEAN CONCENTRATION (mg/L)	NOV DAILY LOAD (t)	DAY
1	55.3	31 S	148	49.1	39 S	165	46.0	21 S	87.1	1
2	54.4	31 S	146	46.4	34 S	136	43.0	22 S	81.7	2
3	51.6	36 S	160	42.4	27 S	98.8	42.0	22 S	79.8	3
4	54.6	36 S	170	43.3	26 S	97.3	41.0	22 S	77.9	4
5	58.8	29 S	142	52.3	25 S	113	40.0	51 S	176	5
6	58.0	35 S	175	52.4	22 S	99.6	39.7	68 S	237	6
7	59.3	36 S	184	51.8	23 S	103	40.5	35 S	122	7
8	56.1	28 S	131	48.7	20 S	84.2	39.7	30 S	103	8
9	55.6	29 S	139	47.4	19 S	77.6	38.8	32 S	107	9
10	53.9	28 S	130	43.6	26 S	97.9	38.6	67 S	223	10
11	52.5	28 S	127	42.6	21 S	77.3	38.1	88 S	287	11
12	53.3	29 S	134	42.0	15 S	68.1	38.7	41 S	137	12
13	53.0	31 S	142	42.3	16 S	68.6	41.2	29 S	103	13
14	48.4	32 S	137	43.0	17 S	83.2	43.1	28 S	108	14
15	47.6	32 S	132	41.8	16 S	87.8	40.5	23 S	80.8	15
16	46.3	29 S	116	41.0	17 S	80.2	40.5	21 S	73.5	16
17	46.3	29 S	114	38.3	17 S	67.7	39.8	30 S	88.4	17
18	44.0	42 S	160	38.3	16 S	62.8	37.2	25 S	80.4	18
19	43.3	45 S	166	37.2	15 S	61.4	36.8	26 S	82.7	19
20	46.8	41 S	173	37.6	17 S	85.1	34.0 B	21	61.7	20
21	50.5	36 S	157	35.6	18 S	85.4	32.0 B	22	60.8	21
22	52.1	30 S	135	34.8	18 S	84.1	29.0 B	22	55.1	22
23	54.0	32 S	149	34.9	18 S	87.3	28.0 B	22	53.2	23
24	51.6	32 S	143	35.3	19 S	87.9	27.5 B	22	52.3	24
25	49.2	30 S	128	80.0	17 S	73.4	27.0 B	22	51.3	25
26	46.8	31 S	131	71.1	18 S	117	26.5 B	21	48.1	26
27	46.8	33 S	139	72.0	17 S	106	26.0 B	21	47.2	27
28	51.6	27 S	120	70.0	15 S	90.7	27.0 B	22	51.3	28
29	53.4	28 S	129	66.0	14 S	79.8	26.5 B	23	55.6	29
30	48.3	37	154	60.0	15 S	82.8	28.0 B	23	57.8	30
31				55.0	20 S	95.0				31
TOTAL	1 549.4		4 322	1 466.9		2 534.4	1 082.5		2 920.2	TOTAL

DAY	DEC DAILY DISCHARGE (m^3/s)	DEC MEAN CONCENTRATION (mg/L)	DEC DAILY LOAD (t)	DAILY DISCHARGE (m^3/s)	MEAN CONCENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m^3/s)	MEAN CONCENTRATION (mg/L)	DAILY LOAD (t)	DAY
1	30.0 B	23	59.8							1
2	31.5 B	23	62.6							2
3	32.3 B	24	67.0							3
4	32.8 B	26	73.7							4
5	34.0 B	27	78.3							5
6	34.5 B	28	83.5							6
7	35.0 B	27	81.8							7
8	35.5 B	28	85.9							8
9	36.0 B	31	96.4							9
10	36.5 B	34	107							10
11	37.0 B	36	115							11
12	37.5 B	37	120							12
13	37.0 B	40	128							13
14	36.0 B	41 S	128							14
15	35.0 B	41	124							15
16	34.0 B	40	118							16
17	33.0 B	40	114							17
18	32.0 B	40	111							18
19	31.0 B	39	104							19
20	30.5 B	39	103							20
21	30.0 B	39	101							21
22	29.7 B	38	97.8							22
23	29.4 B	38	96.5							23
24	29.1 B	37	93.0							24
25	28.8 B	37	92.1							25
26	28.5 B	37	91.1							26
27	28.2 B	36	87.7							27
28	27.9 B	35	84.4							28
29	27.6 B	34	81.1							29
30	27.3 B	32	75.5							30
31	27.0 B	31	72.3							31
TOTAL	884.3		2 833.8							TOTAL

B - ICE CONDITIONS

S - SAMPLE(S) COLLECTED THIS DAY

RED RIVER NEAR LOCKPORT - STATION NO. 05OJ010

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1987

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m^3/s)		SINGLE SAMPLING VERTICAL (m)		TYPE OF SAMPLER	INSTANT. CONCENT. (mg/L)	DISSOLVED SOLIDS (mg/L)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	PERCENT SAND	SILT	CLAY
MAR 12	12:25	0.5	78.6	B	95.0		DH48	10	468														
APR 04	13:05	0.5	131	B	50.0	M	P61	286	324														
APR 04	13:05	0.5	131	B	60.0		P61	294	327														
APR 04	14:10	0.5	140	B	75.0	M	P61	266	317														
APR 04	14:11	0.5	140	B	75.0		P61	276	313														
APR 04	14:30	0.5	126	B	85.0		P61	263	314														
APR 04	14:31	0.5	126	B	85.0		P61	266	307														
APR 04	14:45	0.5	151	B	115	M	P61	280	319														
APR 04	14:46	0.5	151	B	115	M	P61	277	320														
APR 04	15:05	0.5	152	B	150	M	P61	276	311														
APR 04	15:06	0.5	152	B	150	M	P61	275	311														
APR 08	09:40	2.0	2120	H	145	X	D49	807	238														
APR 08	18:15	3.0	2120	H	145	X	D49	816															
APR 09	07:25	3.0	2120	H	85.0		D49	542															
APR 09	18:30	4.0	2120	H	85.0		D49	481															
APR 10	07:30	5.0	2060	H	85.0		D49	456															
APR 10	17:34	5.0	2060	H	85.0		D49	485															
APR 11	10:30	5.0	1970	H	85.0		D49	493															
APR 11	18:25	5.0	1970	H	85.0		D49	496															
APR 12	08:40	5.0	1860	H	85.0		D49	384															
APR 12	09:50	5.0	438		150	M	P61	290	306														
APR 12	09:55	5.0	439		150	M	P61	288	303														
APR 12	10:00	5.0	381		115	M	P61	384	281	33	51	74	87	91	94	96	99	100		6	33	61
APR 12	10:05	5.0	381		115	M	P61	389	284	49	62	78	87	91	93	96	98	100		7	31	62
APR 12	10:10	5.0	310		85.0		P61	410	286	42	56	75	87	92	95	97	100			6	37	58
APR 12	10:15	5.0	310		85.0		P61	384	287	40	53	74	87	91	95	97	99	100		5	42	53
APR 12	10:20	5.0	310		85.0		P61	374	282	43	58	78	84	93	95	97	100			5	37	58
APR 12	10:22	5.0	310		85.0		P61	374	285	50	59	77	85	92	95	96	100			5	36	59
APR 12	10:25	5.0	355		75.0	M	P61	423	281	44	58	74	85	92	93	96	99	100		7	35	58
APR 12	10:27	5.0	355		75.0	M	P61	447	284	45	61	71	81	85	89	92	98	100		11	28	61
APR 12	10:30	5.0	383		50.0	M	P61	431	282	43	61	74	84	92	95	97	100			6	34	61
APR 12	10:31	5.0	383		50.0	M	P61	428	285	51	64	78	86	95	97	98	100			3	33	64
APR 12	17:40	5.0	1880	H	85.0		D49	368	274														
APR 13	07:30	5.0	1780	H	85.0		D49	338															
APR 13	18:15	7.0	1780	H	85.0		D49	328															
APR 14	07:25	7.0	1680	H	85.0		D49	319															
APR 14	17:03	8.0	1680	H	85.0		D49	317															
APR 15	07:27	8.0	1580	H	85.0		D49	300															
APR 15	18:45	8.0	1580	H	85.0		D49	289															
APR 16	07:35	8.0	1490	H	85.0		D49	282															
APR 16	10:20	9.0	338		150	M	D49	316	301														
APR 16	10:21	9.0	338		150	M	D49	323	292														
APR 16	10:25	9.0	307		115	M	D49	278	300														
APR 16	10:26	9.0	307		115	M	D49	276	288														
APR 16	10:30	9.0	288		95.0		D49	268	311														
APR 16	10:31	9.0	288		95.0		D49	283	312														
APR 16	10:35	9.0	285		75.0	M	D49	284	303														
APR 16	10:36	9.0	285		75.0	M	D49	282	308														
APR 16	10:40	9.0	301		50.0	M	D49	269	316														
APR 16	10:41	9.0	301		50.0	M	D49	281	311														
APR 16	17:10	10.0	1490	H	85.0		D49	276															
APR 17	08:28	9.0	1370	H	85.0		D49	265															
APR 17	19:25	10.0	1370	H	85.0		D49	280	330														
APR 18	11:12	11.0	1260	H	85.0		D49	245															
APR 18	17:00	12.0	1260	H	85.0		D49	234															
APR 18	17:05	12.0	1260	H	85.0		D49	263															
APR 18	10:55	12.0	1180	H	85.0		D49	241															
APR 18	18:05	12.0	1180	H	85.0		D49	238															
APR 20	07:27	12.0	1070	H	85.0		D49	263															
APR 20	17:03	11.0	1070	H	85.0		D49	256															
APR 21	07:30	12.0	988	H	85.0		D49	272															
APR 21	17:01	12.0	966	H	85.0		D49	260															
APR 22	07:26	12.0	830	H	85.0		D49	263	388														
APR 22	16:52	13.0	830	H	85.0		D49	268															
APR 23	07:34	12.0	730	H	85.0		D49	261															
APR 23	16:46	12.0	730	H	85.0		D49	237															
APR 24	07:43	12.0	628	H	85.0		D49	261															
APR 24	17:01	12.0	628	H	85.0		D49	250															
APR 25	11:50	13.0	584	H	85.0		D49	280															
APR 25	17:25	13.0	584	H	85.0		D49	281															
APR 26	10:51	13.0	520	H	85.0		D49	274															
APR 26	17:41	13.0	520	H	85.0		D49	281															
APR 27	07:26	13.0	480	H	85.0		D49	238															
APR 27	16:57	14.0	480	H	85.0		D49	294															
APR 28	08:10	13.0	81.1		150	M	D49	318	435	38	55	73	87	95	97	99	100			3	42	55
APR 28	09:15	13.0	88.6		115	M	D49	310	434	31	50	78	89	97	97	100				3	41	56
APR 28	09:20	13.0	88.1		85.0		D49	288	417	32	57	78	88	97	98	100				3	41	57
APR 28	09:25	13.0	86.3		75.0	M	D49	324	436	38	54	77	89	97	98	100				1	45	54
APR 28	09:30	13.0	71.3		50.0	M	D49	304	426	37	49	74	86	94	97	99	100			3	48	49
APR 28	16:30	14.0	426	H	85.0		D49	300															
APR 29	18:48	14.0	387	H	85.0		DH59	281															
APR 30	18:37	14.0	377	H	85.0		DH59	232															
MAY 01	18:48	14.0	357	H	85.0		DH59	188															
MAY 02	18:08	14.0	333	H	85.0		DH59	150															
MAY 03	19:01	14.0	308	H	85.0		DH59	114															
MAY 04	17:14	14.0	280	H	85.0		DH59	78	450														
MAY 05	17:30	15.0	272	H	85.0		DH59	71															
MAY 06	18:52	15.0	256	H	85.0		DH59	52															
MAY 07	18:43	15.0	242	H	85.0		DH59	50															
MAY 08	18:30	15.0	230	H	85.0		DH59	43															
MAY 09	18:01	15.0	221	H	85.0		DH59	40															
MAY 10	17:54	17.0	308	H	85.0		DH59	39															
MAY 11	18:50	16.0	201	H	85.0		DH59	43	508														
MAY 12	18:50	17.0	191	H	85.0		DH59	185															
MAY 13	17:51	17.0	181	H	85.0		DH59	36															
MAY 14	12:10	17.0	21.8		150	M	DH59	41	513														
MAY 14	12:15	17.0	38.4		115	M	DH59	38	505														
MAY 14	12:20	17.0	38.3		95.0		DH59	40	505														
MAY 14	12:25	17.0	41.1		75.0	M	DH59	41	508														
MAY 14	12:30	17.0	43.7		50.0	M	DH59	43	511														
MAY 14	17:53	17.0	174	H	85.0		DH59	38	517														
MAY 15	17:26	18.0	167	H	85.0		DH59	35															

NOTE : SINGLE VERTICAL LOCATED AT 85.0 METRES FOR 1987

DISCHARGE SYMBOL(S): B - ICE CONDITIONS H - DAILY MEAN

VERTICAL SYMBOL(S): M - A SEDIMENT MEASUREMENT VERTICAL X - NOT AT REGULAR SINGLE SAMPLE VERTICAL

CONTINUED

MANITOBA

RED RIVER NEAR LOCKPORT - STATION NO. 05OJ010 (CONTINUED)

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1987

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m^3/s)		SINGLE VERTICAL SAMPLING (m)		TYPE OF SAMPLER	INSTANT. CONCENT. (mg/L)	DISSOLVED SOLIDS (mg/L)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	PERCENT SAND	SILT	CLAY
MAY 16	16:01	17.0	158		85.0		DH59	28															
MAY 17	16:51	16.0	148		85.0		DH59	37															
MAY 18	15:15	17.0	142		85.0		DH59	28															
MAY 19	16:27	17.0	136		85.0		DH59	31															
MAY 20	16:16	15.0	133		85.0		DH59	27															
MAY 21	16:26	13.0	130		85.0		DH59	36	526														
MAY 22	16:37	14.0	125		85.0		DH59	26															
MAY 23	14:31	15.0	120		85.0		DH59	22															
MAY 24	16:53	15.0	119		85.0		DH59	23															
MAY 25	16:14	16.0	127		85.0		DH59	22															
MAY 26	16:41	16.0	161		85.0		DH59	28															
MAY 27	17:30	16.0	186		85.0		DH59	36															
MAY 28	17:47	17.0	238		85.0		DH59	31															
MAY 29	16:51	17.0	259		85.0		DH59	28	557														
MAY 30	16:37	19.0	272		85.0		DH59	31															
MAY 31	17:27	20.0	282		85.0		DH59	43															
JUN 01	16:42	19.0	312		85.0		DH59	104															
JUN 02	16:41	18.0	318		85.0		DH59	141															
JUN 03	16:37	18.0	315		85.0		DH59	108															
JUN 04	16:47	18.0	301		85.0		DH59	97															
JUN 05	16:03	19.0	278		85.0		DH59	72	502														
JUN 06	16:03	20.0	258		85.0		DH59	62															
JUN 07	16:37	20.0	235		85.0		DH59	60															
JUN 08	16:16	20.0	209		85.0		DH59	62															
JUN 08	12:40	20.0	34.8		150	M	DH59	80	531														
JUN 08	12:45	20.0	45.9		118	M	DH59	81	531														
JUN 08	12:50	20.0	43.5		95.0		DH59	81	538														
JUN 08	12:55	20.0	42.7		76.0	M	DH59	81	537														
JUN 08	13:00	20.0	38.8		58.0	M	DH59	85	537														
JUN 09	16:32	21.0	188		85.0		DH59	48															
JUN 10	16:15	21.0	168		85.0		DH59	58															
JUN 11	15:45	22.0	155		85.0		DH59	80															
JUN 12	17:33	22.0	143		85.0		DH59	46															
JUN 13	16:51	23.0	136		85.0		DH59	42															
JUN 14	16:55	23.0	129		85.0		DH59	28	536														
JUN 15	17:14	24.0	121		85.0		DH59	45															
JUN 16	16:22	24.0	118		85.0		DH59	38															
JUN 17	16:38	25.0	114		85.0		DH59	34															
JUN 18	17:41	25.0	110		85.0		DH59	31															
JUN 19	16:36	25.0	105		85.0		DH59	28															
JUN 20	16:11	26.0	101		85.0		DH59	40															
JUN 21	17:10	26.0	86.4	M	85.0		DH59	47	573														
JUN 22	16:13	27.0	83.2	M	85.0		DH59	37															
JUN 23	16:37	27.0	80.8	M	85.0		DH59	34															
JUN 24	16:17	25.0	85.1	M	85.0		DH59	30															
JUN 25	15:30	25.0	79.3	M	85.0		DH59	31															
JUN 25	16:03	26.0	77.6	M	85.0		DH59	32															
JUN 27	20:41	27.0	75.9	M	85.0		DH59	19															
JUN 28	10:13	26.0	73.6	M	85.0		DH59	21	544														
JUN 28	12:32	24.0	72.8	M	85.0		DH59	41															
JUN 30	10:58	23.0	72.0	M	85.0		DH59	43															
JUL 01	19:42	22.0	70.0	M	85.0		DH59	46															
JUL 02	12:30	23.0	15.6		140	M	DH59	83	571														
JUL 02	12:35	23.0	13.8		118	M	DH59	82	581														
JUL 02	12:40	23.0	14.0		95.0		DH59	83	586														
JUL 02	12:45	23.0	14.6		76.0	M	DH59	82	582														
JUL 02	12:50	23.0	12.6		58.0	M	DH59	84	582														
JUL 02	13:02	23.0	67.2	M	85.0		DH59	42															
JUL 04	13:14	22.0	86.3	M	85.0		DH59	38															
JUL 05	21:08	23.0	85.7	M	85.0		DH59	44															
JUL 06	13:32	24.0	83.8	M	85.0		DH59	46															
JUL 07	12:53	23.0	82.7	M	85.0		DH59	43															
JUL 08	13:32	24.0	81.6	M	85.0		DH59	86	518														
JUL 09	16:08	24.0	80.8	M	85.0		DH59	35															
JUL 10	17:51	24.0	83.0	M	85.0		DH59	42															
JUL 11	16:30	23.0	87.2	M	85.0		DH59	40															
JUL 12	12:52	22.0	72.2	M	85.0		DH59	48															
JUL 13	08:47	22.0	78.8	M	85.0		DH59	51	530														
JUL 14	16:18	22.0	78.3	M	85.0		DH59	41															
JUL 15	13:18	22.0	76.7	M	85.0		DH59	53															
JUL 16	11:48	23.0	77.1	M	85.0		DH59	48															
JUL 17	16:32	23.0	75.3	M	85.0		DH59	37															
JUL 18	15:00	23.0	72.8	M	85.0		DH59	38	531														
JUL 19	16:31	24.0	78.0	M	85.0		DH59	82															
JUL 20	16:27	23.0	73.7	M	85.0		DH59	38															
JUL 21	16:38	23.0	72.0	M	85.0		DH59	39															
JUL 22	11:02	21.0	73.4	M	85.0		DH59	47															
JUL 23	11:57	21.0	75.3	M	85.0		DH59	38															
JUL 24	16:58	23.0	77.8	M	85.0		DH59	31	510														
JUL 25	12:33	24.0	138	M	85.0		DH59	38															
JUL 26	19:12	24.0	228	M	85.0		DH59	61															
JUL 27	18:20	24.0	284	M	85.0		DH59	64															
JUL 28	18:41	25.0	312	M	85.0		DH59	74															
JUL 29	11:36	25.0	98.5		150	M	DH59	80	481														
JUL 29	11:40	26.0	76.4		118	M	DH59	97	488														
JUL 29	11:45	26.0	87.9		95.0		DH59	108	482														
JUL 29	11:50	26.0	73.2		76.0	M	DH59	128	488														
JUL 29	11:55	26.0	53.1		58.0	M	DH59	148	508														
JUL 29	16:37	27.0	307	M	85.0		DH59	98	488														
JUL 30	11:28	26.0	296	M	85.0		DH59	138															
JUL 31	17:28	26.0	284	M	85.0		DH59	284															
AUG 01	12:07	25.0	277	M	85.0		DH59	330															
AUG 02	12:10	26.0	262	M	85.0		DH59	234	288														
AUG 03	08:41	25.0	220	M	85.0		DH59	186	338														
AUG 04	11:10	23.0	190	M	85.0		DH59	167	337														
AUG 05	10:57	23.0	182	M	85.0		DH59	143															
AUG 06	15:43	23.0	140	M	85.0		DH59	124															
AUG 07	10:31	24.0	126	M	85.0		DH59	78															
AUG 08	11:04	23.0	115	M	85.0		DH59	87															
AUG 09	09:32	23.0	107	M	85.0		DH59	87															
AUG 10	11:56	23.0	102	M	85.0		DH59	74															
AUG 11	09:16	23.0	99.2	M	85.0		DH59	83	426														

NOTE : SINGLE VERTICAL LOCATED AT 85.0 METRES FOR 1987

DISCHARGE SYMBOL(S): M - DAILY MEAN
VERTICAL SYMBOL(S): M - A SEDIMENT MEASUREMENT VERTICAL

CONTINUED

RED RIVER NEAR LOCKPORT - STATION NO. 05OJ010 (CONTINUED)

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1987

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m^3/s)		SINGLE SAMPLING VERTICAL (m)		TYPE OF SAMPLER	INSTANT. CONCENT. (mg/L)	DISSOLVED SOLIDS (mg/L)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	PERCENT SAND	SILT	CLAY
AUG	12	07:43	22.0	95.5	M	95.0		DNBS	45														
AUG	13	13:51	22.0	91.2	M	95.0		DNBS	40														
AUG	14	10:31	22.0	93.5	M	95.0		DNBS	37														
AUG	15	08:51	21.0	122	M	95.0		DNBS	43														
AUG	16	11:42	20.0	125	M	95.0		DNBS	42														
AUG	17	15:42	20.0	121	M	95.0		DNBS	38														
AUG	18	17:56	19.0	125	M	95.0		DNBS	38	450													
AUG	19	11:12	19.0	120	M	95.0		DNBS	40														
AUG	20	13:12	20.0	107	M	95.0		DNBS	37														
AUG	21	09:03	20.0	84.1	M	95.0		DNBS	40														
AUG	22	10:56	20.0	88.8	M	95.0		DNBS	88														
AUG	23	10:14	19.0	83.2	M	95.0		DNBS	37														
AUG	24	10:58	19.0	80.3	M	95.0		DNBS	38														
AUG	25	13:13	19.0	78.8	M	95.0		DNBS	34	513													
AUG	26	13:10	19.0	72.4	M	95.0		DNBS	32														
AUG	27	12:02	19.0	67.8	M	95.0		DNBS	30														
AUG	27	14:16	20.0	11.0		150	M	DNBS	34	545													
AUG	27	14:20	20.0	15.2		115	M	DNBS	31	532													
AUG	27	14:25	20.0	14.5		95.0		DNBS	30	536													
AUG	27	14:30	20.0	15.4		75.0	M	DNBS	30	528													
AUG	27	14:35	20.0	13.4		55.0	M	DNBS	31	535													
AUG	28	11:57	19.0	83.7	M	95.0		DNBS	28														
AUG	29	10:11	18.0	89.2	M	95.0		DNBS	32														
AUG	30	12:53	18.0	87.0	M	95.0		DNBS	33														
AUG	31	12:58	17.0	84.8	M	95.0		DNBS	31														
SEP	01	17:31	18.0	85.3	M	95.0		DNBS	30														
SEP	02	11:04	17.0	84.4	M	95.0		DNBS	32														
SEP	03	16:41	18.0	81.6	M	95.0		DNBS	38	532													
SEP	04	16:53	18.0	84.8	M	95.0		DNBS	30														
SEP	05	14:01	18.0	86.8	M	95.0		DNBS	27														
SEP	06	08:08	18.0	88.0	M	95.0		DNBS	34														
SEP	07	17:28	18.0	89.3	M	95.0		DNBS	36	518													
SEP	08	08:21	18.0	88.1	M	95.0		DNBS	27														
SEP	09	17:02	18.0	85.6	M	95.0		DNBS	31														
SEP	10	16:21	18.0	83.8	M	95.0		DNBS	31														
SEP	11	16:33	17.0	82.5	M	95.0		DNBS	28														
SEP	12	10:34	16.0	83.3	M	95.0		DNBS	38														
SEP	13	12:04	16.0	83.0	M	95.0		DNBS	32														
SEP	14	16:43	17.0	48.4	M	95.0		DNBS	30	523													
SEP	15	16:33	18.0	47.6	M	95.0		DNBS	33														
SEP	16	16:38	17.0	48.3	M	95.0		DNBS	28														
SEP	17	17:21	18.0	45.3	M	95.0		DNBS	33														
SEP	18	07:41	17.0	44.0	M	95.0		DNBS	41														
SEP	18	07:08	17.0	43.3	M	95.0		DNBS	46														
SEP	20	16:21	17.0	48.8	M	95.0		DNBS	40														
SEP	21	17:38	17.0	50.5	M	95.0		DNBS	32	499													
SEP	22	18:31	17.0	52.1	M	95.0		DNBS	32														
SEP	23	16:28	17.0	54.0	M	95.0		DNBS	35														
SEP	24	16:22	17.0	51.6	M	95.0		DNBS	32														
SEP	25	16:00	17.0	48.2	M	95.0		DNBS	28														
SEP	26	15:20	16.0	48.8	M	95.0		DNBS	33	536													
SEP	27	10:04	16.0	48.9	M	95.0		DNBS	31														
SEP	28	15:45	16.0	51.8	M	95.0		DNBS	28														
SEP	29	17:25	16.0	53.4	M	95.0		DNBS	31														
OCT	01	09:15	13.0	0.62		150	M	DNBS	38	520													
OCT	01	09:20	13.0	14.8		115	M	DNBS	38	517													
OCT	01	09:26	13.0	11.2		95.0		DNBS	38	524													
OCT	01	09:30	13.0	0.28		75.0	M	DNBS	40	518													
OCT	01	09:35	13.0	0.08		55.0	M	DNBS	39	511													
OCT	02	17:25	18.0	46.4	M	95.0		DNBS	34														
OCT	03	13:03	18.0	43.4	M	95.0		DNBS	26														
OCT	04	15:18	15.0	43.3	M	95.0		DNBS	27														
OCT	05	19:27	14.0	52.3	M	95.0		DNBS	21														
OCT	06	19:02	12.0	52.4	M	95.0		DNBS	21														
OCT	07	18:21	11.0	51.6	M	95.0		DNBS	20	513													
OCT	08	16:47	10.0	46.7	M	95.0		DNBS	18														
OCT	09	17:50	9.0	47.4	M	95.0		DNBS	21														
OCT	10	19:02	9.0	43.8	M	95.0		DNBS	21														
OCT	11	17:28	9.0	42.6	M	95.0		DNBS	31														
OCT	12	15:49	8.0	42.0	M	95.0		DNBS	14														
OCT	13	16:43	8.0	42.3	M	95.0		DNBS	16														
OCT	14	15:10	8.0	43.0	M	95.0		DNBS	16	503													
OCT	15	15:49	8.0	41.8	M	95.0		DNBS	17														
OCT	16	12:37	8.0	41.0	M	95.0		DNBS	17														
OCT	17	15:12	7.0	39.3	M	95.0		DNBS	16														
OCT	18	10:44	7.0	38.3	M	95.0		DNBS	16														
OCT	18	15:47	8.0	37.2	M	95.0		DNBS	18														
OCT	20	17:00	8.0	37.5	M	95.0		DNBS	17														
OCT	21	15:50	8.0	35.6	M	95.0		DNBS	16	554													
OCT	22	15:33	8.0	34.8	M	95.0		DNBS	17														
OCT	23	15:40	8.0	34.8	M	95.0		DNBS	20														
OCT	24	17:28	8.0	35.3	M	95.0		DNBS	18														
OCT	25	15:51	8.0	50.0	M	95.0		DNBS	17														
OCT	26	10:30	8.0	0.84		150	M	DNBS	17	544													
OCT	26	10:35	8.0	17.3		115	M	DNBS	23	541													
OCT	26	10:40	8.0	18.4		95.0		DNBS	18	535													
OCT	26	10:45	8.0	16.7		75.0	M	DNBS	17	542													
OCT	26	10:50	8.0	11.8		55.0	M	DNBS	18	548													
OCT	26	16:41	8.0	71.1	M	95.0		DNBS	20	547													
OCT	27	17:53	4.0	72.0	M	95.0		DNBS	17														
OCT	28	15:58	4.0	70.0	M	95.0		DNBS	15														
OCT	29	15:47	4.0	66.0	M	95.0		DNBS	16														
OCT	30	17:14	4.0	60.0	M	95.0		DNBS	15	557													
OCT	31	15:17	4.0	55.0	M	95.0		DNBS	20														
NOV	01	11:51	4.0	48.0	M	95.0		DNBS	20														
NOV	02	15:58	4.0	43.0	M	95.0		DNBS	22	575													
NOV	03	15:13	4.0	42.0	M	95.0		DNBS	22														
NOV	04	17:14	4.0	41.0	M	95.0		DNBS	20														
NOV	05	17:21	4.0	40.0	M	95.0		DNBS	62														
NOV	06	15:17	4.0	39.7	M	95.0		DNBS	63														
NOV	07	15:15	3.0	40.5	M	95.0		DNBS	28														
NOV	08	12:37	3.0	39.7	M	95.0		DNBS	28														

NOTE : SINGLE VERTICAL LOCATED AT 95.0 METRES FOR 1987

DISCHARGE SYMBOL(S): M - DAILY MEAN
VERTICAL SYMBOL(S): M - A SEDIMENT MEASUREMENT VERTICAL

CONTINUED

MANITOBA

RED RIVER NEAR LOCKPORT - STATION NO. 05OJ010 (CONTINUED)

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1987

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m³/s)		SINGLE SAMPLING VERTICAL (m)		TYPE OF SAMPLER	INSTANT. CONCENT. (mg/L)	DISSOLVED SOLIDS (mg/L)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	PERCENT SAND	SILT	CLAY
NOV 09	16:30	3.0	38.6	H	95.0		DH59	33	875														
NOV 10	16:26	3.0	38.6	H	95.0		DH59	62															
NOV 11	15:23	3.0	38.1	H	95.0		DH59	28															
NOV 12	16:47	3.0	38.7	H	95.0		DH59	38															
NOV 13	17:10	3.0	41.2	H	95.0		DH59	27															
NOV 14	17:37	3.0	43.1	H	95.0		DH59	23															
NOV 15	12:21	2.0	40.6	H	95.0		DH59	22	894														
NOV 16	16:16	2.0	40.6	H	95.0		DH59	16															
NOV 17	16:58	2.0	39.6	H	95.0		DH59	17															
NOV 18	16:31	2.0	37.2	H	95.0		DH59	26															
NOV 19	16:12	2.0	36.8	H	95.0		DH59	21	836														
DEC 14	09:15	0.5	36.0	W	30.0	X	DH48	41	705														

NOTE : SINGLE VERTICAL LOCATED AT 95.0 METRES FOR 1987

DISCHARGE SYMBOL(S): H - DAILY MEAN W - DAILY MEAN; ICE CONDITIONS
VERTICAL SYMBOL(S): X - NOT AT REGULAR SINGLE SAMPLE VERTICAL

POINT INTEGRATING PARTICLE-SIZE ANALYSIS OF SUSPENDED SEDIMENT FOR 1987

DATE	TIME	WATER TEMP. (°C)	PANEL DISCHARGE (m³/s)		SAMPLING VERTICAL (m)	DEPTH OF SAMPLE (m)	CONCENT. OF SAMPLE (mg/L)	DISSOLVED SOLIDS (mg/L)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	PERCENT SAND	SILT	CLAY
APR 04	13:20	0.5	131	B	50	4.70	291	310	DATA NOT AVAILABLE													
APR 04	13:30	0.5	131	B	50	4.20	312	328	DATA NOT AVAILABLE													
APR 04	13:40	0.5	131	B	50	3.15	364	318	DATA NOT AVAILABLE													
APR 04	13:50	0.5	131	B	50	1.58	377	314	DATA NOT AVAILABLE													
APR 04	14:00	0.5	131	B	50	0.30	376	316	DATA NOT AVAILABLE													
APR 04	14:15	0.5	140	B	75	5.75	277	323	DATA NOT AVAILABLE													
APR 04	14:20	0.5	140	B	75	4.68	281	332	DATA NOT AVAILABLE													
APR 04	14:25	0.5	140	B	75	3.41	285	320	DATA NOT AVAILABLE													
APR 04	14:27	0.5	140	B	75	1.75	288	315	DATA NOT AVAILABLE													
APR 04	14:30	0.5	140	B	75	0.30	287	308	DATA NOT AVAILABLE													
APR 04	14:33	0.5	126	B	95	4.75	311	324	DATA NOT AVAILABLE													
APR 04	14:35	0.5	126	B	95	5.65	323	328	DATA NOT AVAILABLE													
APR 04	14:38	0.5	126	B	95	3.60	305	314	DATA NOT AVAILABLE													
APR 04	14:40	0.5	126	B	95	1.78	290	316	DATA NOT AVAILABLE													
APR 04	14:45	0.5	126	B	95	0.30	290	316	DATA NOT AVAILABLE													
APR 04	14:50	0.5	151	B	115	5.60	282	320	DATA NOT AVAILABLE													
APR 04	14:53	0.5	151	B	115	4.58	270	334	DATA NOT AVAILABLE													
APR 04	14:58	0.5	151	B	115	3.42	274	323	DATA NOT AVAILABLE													
APR 04	14:59	0.5	151	B	115	1.71	280	323	DATA NOT AVAILABLE													
APR 04	15:02	0.5	151	B	115	0.30	281	328	DATA NOT AVAILABLE													
APR 04	15:10	0.5	152	B	150	4.50	323	308	DATA NOT AVAILABLE													
APR 04	15:15	0.5	152	B	150	3.88	303	307	DATA NOT AVAILABLE													
APR 04	15:20	0.5	152	B	150	2.75	288	334	DATA NOT AVAILABLE													
APR 04	15:25	0.5	152	B	150	1.38	300	337	DATA NOT AVAILABLE													
APR 04	15:30	0.5	152	B	150	0.30	291	312	DATA NOT AVAILABLE													

NOTE : SINGLE VERTICAL LOCATED AT 95.0 METRES FOR 1987

DISCHARGE SYMBOL(S): B - ICE CONDITIONS

MANITOBA

RED RIVER NEAR LOCKPORT - STATION NO. 05OJ010

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF OPERATION SUMMARY (JFMAMJJASOND)	TYPE OF SAMPLING	SAMPLED CONCENTRATION MAXIMUM (mg/L)				SAMPLED CONCENTRATION MINIMUM (mg/L)				SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)				SUSPENDED SEDIMENT LOAD TOTAL FOR PERIOD (TONNES)		SUMMARY : JAN-DEC MEAN LOAD (TONNES)		SUMMARY : JAN-DEC HISTORICAL MEAN LOAD (TONNES)		SUMMARY : JAN-DEC STANDARD ERROR OF MEAN %	
1962	---PCCCCCCCC	MANUAL	1	230	APR	25	10	OCT	04		183	000	APR	25	2	080	000	---	---	---	---	---
1963	CCCCCCCCCCCC	MANUAL	1	580	JUN	08	4	FEB	19		58	200	APR	14	1	300	000	3	580	3	580	---
1964	CCCCCCCCCCCC	MANUAL	2	080	APR	18	5	OCT	04		178	000	APR	18	1	970	000	5	380	4	470	20.4
1965	CCCCCCCCCCCC	MANUAL	2	450	APR	14	* 10	MAR	02		289	000	APR	18	3	490	000	8	550	8	180	28.8
1966	CCCCCCCCCCCC	MANUAL	1	340	JUL	05	8	DEC	23		137	000	APR	10	2	870	000	6	140	6	880	20.2
1967	CCCCCCCCCCCC	MANUAL	1	010	APR	23	1	AUG	14	*	139	000	APR	23	2	420	000	6	830	6	850	15.7
1968	CCCCCCCCCCCC	MANUAL	1	300	JUN	16	4	JAN	25		42	300	JUN	16		883	000	2	410	5	950	18.8
1969	CCCCCCCCCCCC	MANUAL	1	700	APR	17	6	FEB	14		234	000	APR	17	3	420	000	9	380	6	440	16.4
1970	CCCCCCCCCCCC	MANUAL	1	140	APR	18	8	OCT	06		140	000	APR	21	3	120	000	8	550	8	700	14.2
1971	CCCCCCCCCCCC	MANUAL	2	230	APR	13	3	FEB	08		304	000	APR	13	* 1	910	000	5	230	6	640	13.1
1972	CCCCCCCCCCCC	DUAL		753	APR	17	7	OCT	16		88	600	APR	21	1	440	000	3	920	6	280	12.9
1973	CCCCCCCCCCCC	DUAL		553	MAR	28	2	JAN	19		27	200	MAR	28		255	000		701	5	770	15.4
1974	CCCCCCCCCCCC	DUAL	1	010	APR	24	3	FEB	01		212	000	APR	24	3	370	000	9	240	6	080	14.2
1975	CCCCCCCCCCCC	DUAL	1	020	APR	24	11	FEB	27		91	700	APR	24	2	070	000	5	680	6	030	13.2
1976	CCCCCCCCCCCC	DUAL		807	APR	11	10	OCT	18		103	000	APR	08	1	880	000	5	170	5	870	12.4
1977	CCCCCCCCCCCC	DUAL		238	APR	14	5	MAY	10		5	250	APR	13		51	500		141	5	580	14.1
1978	CCCCCCCCCCCC	MANUAL		780	APR	11	13	FEB	08		115	000	APR	14	2	010	000	5	810	5	570	13.2
1979	CCCCCCCCCCCC	MANUAL		795	APR	22	10	DEC	18		181	000	APR	23	3	710	000	* 10	200	5	850	12.7
1980	CCCCCCCCCCCC	MANUAL	1	880	APR	14	9	DEC	17		183	000	APR	12	1	480	000	3	990	5	740	13.4
1981	CCCCCCCCCCCC	MANUAL		116	APR	26	8	JAN	16		3	840	APR	02		85	800		238	5	450	13.4
1982	CCCCCCCCCCCC	MANUAL	1	210	APR	17	8	FEB	19		124	000	APR	17	1	540	000	4	220	5	380	12.8
1983	CCCCCCCCCCCC	MANUAL		487	APR	14	12	JAN	14		51	700	APR	10	1	380	000	3	780	5	320	12.5
1984	CCCCCCCCCCCC	MANUAL	1	020	JUN	18	11	FEB	10		98	800	APR	07	1	220	000	3	340	5	230	12.3
1985	CCCCCCCCCCCC	MANUAL	1	880	MAY	20	12	MAR	12		84	800	MAY	20	1	830	000	4	180	5	180	11.9
1986	CCCCCCCCCCCC	MANUAL		818	APR	5	7	MAR	8		80	400	APR	05	1	700	000	4	850	5	160	11.4
1987	--CCCCCCCCC	MANUAL		818	APR	8	10	MAR	12		141	000	APR	08	1	250	000	---		---		---

DUAL - MANUAL AND AUTOMATIC SAMPLING MANUAL - MANUAL SAMPLING

C - COMPLETE MONTH P - PARTIAL MONTH * - EXTREME FOR PERIOD OF RECORD

MANITOBA

ROSEAU RIVER AT GARDENTON - STATION NO. 05OD004

SUSPENDED SEDIMENT FOR 1987

LOCATION: LAT 49 05 15 N LONG 96 41 15 W
DRAINAGE AREA: 4 470 km²
TYPE OF FLOW: NATURAL
TYPE OF GAUGE: RECORDING

TOTAL SUSPENDED SEDIMENT LOAD 7 450 TONNES FOR THE PERIOD MAR 01 TO NOV 04

REMARKS:

DAY	MAR DAILY DISCHARGE (m³/s)	MAR MEAN CONCENTRATION (mg/L)	MAR DAILY LOAD (t)	APR DAILY DISCHARGE (m³/s)	APR MEAN CONCENTRATION (mg/L)	APR DAILY LOAD (t)	MAY DAILY DISCHARGE (m³/s)	MAY MEAN CONCENTRATION (mg/L)	MAY DAILY LOAD (t)	DAY
1	0.524 B	8	0.36	22.7 B	39	76.6	17.7	17	26.0	1
2	0.524 B	8	0.36	24.0 B	42	83.9	13.8	18	19.1	2
3	0.524 B	8	0.36	27.1 B	46	93.7	11.0	14	13.3	3
4	0.526 B	8 S	0.36	33.1 B	48	129	9.33	14 S	11.3	4
5	0.526 B	8	0.36	33.4 B	70	202	8.03	14	9.71	5
6	0.526 B	8	0.36	36.1	103 S	321	8.94	13 S	7.80	6
7	0.527 B	8	0.41	52.2	122	550	8.00	11 S	5.70	7
8	0.527 B	8	0.41	59.4	113	580	8.10	11	4.85	8
9	0.526 B	8	0.41	54.3	77 S	361	5.85	10 S	4.88	9
10	0.526 B	8	0.41	52.8	80 S	274	7.74	10	6.89	10
11	0.526 B	8	0.41	52.9	47 S	215	7.14	11 S	6.78	11
12	0.526 B	8	0.41	53.8	46 S	214	6.28	11	5.98	12
13	0.526 B	8	0.41	53.4	40 S	185	5.24	11	4.98	13
14	0.526 B	10	0.48	52.8	38 S	173	4.05	9 S	3.15	14
15	0.529 B	10	0.48	52.1	40 S	180	2.32	10 S	1.92	15
16	0.530 B	10	0.48	50.8	38	158	1.89	8	1.24	16
17	0.528 B	10	0.48	50.3	32 S	139	1.53	10	1.32	17
18	0.529 B	10	0.46	49.7	31 S	133	1.44	10 S	1.24	18
19	0.476 B	9	0.37	46.6	32	135	1.47	10	1.27	19
20	0.442 B	9	0.34	46.6	28 S	113	1.53	10	1.32	20
21	0.714 B	11	0.68	46.6	28	113	3.28	11	3.13	21
22	1.56 B	20	2.70	46.6	24 S	94.6	7.21	18 S	11.2	22
23	2.28 B	23	4.55	44.0	22	83.6	12.2	40	42.2	23
24	6.07 B	28	15.2	42.8	22 S	81.5	18.7	62 S	89.5	24
25	11.0 B	34	32.3	41.5	22	78.9	18.7	83 S	134	25
26	15.2 B	38	53.2	38.4	18 S	64.7	18.9	78	134	26
27	22.0 B	41	77.8	36.7	19	60.2	20.4	55 S	96.8	27
28	20.6 B	41	73.0	33.1	18 S	51.5	21.2	54	98.8	28
29	20.2 B	40	69.8	28.4	16 S	39.3	21.5	57 S	106	29
30	21.0 B	41	74.4	23.2	17 S	34.1	21.5	60	111	30
31	21.7 B	40	78.0				21.2	59	108	31
TOTAL	153.738		486.77	1 288.8		5 017.5	307.59		1 073.37	TOTAL

DAY	JUN DAILY DISCHARGE (m³/s)	JUN MEAN CONCENTRATION (mg/L)	JUN DAILY LOAD (t)	JUL DAILY DISCHARGE (m³/s)	JUL MEAN CONCENTRATION (mg/L)	JUL DAILY LOAD (t)	AUG DAILY DISCHARGE (m³/s)	AUG MEAN CONCENTRATION (mg/L)	AUG DAILY LOAD (t)	DAY
1	20.6	81 S	108	0.773	38	2.54	1.57	30	4.07	1
2	19.6	84	81.4	0.722	34 S	2.12	1.31	30	3.40	2
3	18.2	44 S	69.2	0.620	34	1.82	1.06	30	2.75	3
4	16.4	41	58.1	0.554	32	1.53	0.811	27 S	1.89	4
5	13.8	39	46.5	0.523	31	1.40	0.758	28	1.83	5
6	11.1	38	36.4	0.482	28 S	1.18	0.708	28	1.83	6
7	8.87	36	26.6	0.464	29	1.21	0.618	23	1.22	7
8	7.38	35 S	22.3	0.413	28	1.00	0.550	22 S	1.05	8
9	6.36	36	19.6	0.346	26	0.78	0.522	23	1.04	9
10	5.59	36	17.4	0.360	27	0.84	0.488	21	0.85	10
11	5.85	38	17.6	0.320	26 S	0.77	0.447	20 S	0.77	11
12	5.80	37	17.5	0.304	29	0.78	0.408	15 S	0.63	12
13	5.87	37	18.1	0.276	27	0.64	0.367	16	0.49	13
14	5.80	36 S	17.4	0.287	22 S	0.51	0.321	17	0.47	14
15	4.98	34 S	14.6	0.269	25	0.62	0.330	16 S	0.61	15
16	4.08	33	11.6	0.356	28	0.80	0.288	15	0.46	16
17	3.38	38	10.6	0.447	27 S	1.04	0.288	16	0.47	17
18	2.62	38	8.15	0.528	26	1.28	0.288	16	0.47	18
19	2.38	35	7.23	1.21	27	2.82	0.259	16 S	0.43	19
20	2.05	36	6.20	1.35	26	2.92	0.231	16	0.36	20
21	2.05	38	6.73	2.14	32 S	5.92	0.282	17 S	0.43	21
22	1.74	41 S	6.18	5.19	45 S	20.2	0.324	16	0.46	22
23	1.79	39	6.03	5.80	38	16.0	0.316	12 A	0.33	23
24	2.34	41 S	8.28	5.22	35	15.8	0.280	11	0.27	24
25	2.38	41	8.47	4.83	35 S	14.5	0.251	11	0.24	25
26	1.88	43	6.82	4.28	35	13.0	0.233	11 S	0.22	26
27	1.47	42	5.33	3.61	33 S	10.3	0.223	12	0.23	27
28	1.30	41	4.61	2.98	30	7.72	0.230	14 S	0.28	28
29	1.10	45 S	4.28	2.42	28 B	5.85	0.226	14	0.28	29
30	0.881	46	3.80	2.01	28	4.88	0.227	12	0.24	30
31				1.80	30 S	4.87	0.188	10 S	0.17	31
TOTAL	188.811		695.00	80.924		147.51	14.408		27.73	TOTAL

B - ICE CONDITIONS

S - SAMPLE(S) COLLECTED THIS DAY

ROSEAU RIVER AT GARDENTON - STATION NO. 05DD004

SUSPENDED SEDIMENT FOR 1987

DAY	SEP DAILY DISCHARGE (m^3/s)	SEP MEAN CONCENTRATION (mg/L)	SEP DAILY LOAD (t)	OCT DAILY DISCHARGE (m^3/s)	OCT MEAN CONCENTRATION (mg/L)	OCT DAILY LOAD (t)	NOV DAILY DISCHARGE (m^3/s)	NOV MEAN CONCENTRATION (mg/L)	NOV DAILY LOAD (t)	DAY
1	0.183	11	0.18	0.072	11	0.07				
2	0.164	11	0.16	0.058	12 S	0.08		8		1
3	0.129	11	0.12	0.051	11	0.05		8		2
4	0.134	12 S	0.14	0.052	10	0.05		7		3
5	0.149	11	0.14	0.108	8 S	0.07		8 S		4
6	0.145	10	0.13							5
7	0.141	11 S	0.13	0.105	8	0.07				
8	0.145	12	0.15	0.187	8	0.12				6
9	0.135	12	0.14	0.182	9	0.15				7
10	0.133	14 S	0.15	0.187	9	0.15				8
				0.181	8	0.13				9
11	0.118	14	0.14							10
12	0.110	13	0.12	0.181	8 S	0.11				
13	0.081	13	0.10	0.150	9	0.12				11
14	0.072	12	0.07	0.151	9	0.12				12
15	0.058	11	0.06	0.151	7	0.08				13
				0.158	7	0.10				14
16	0.051	8 S	0.04							15
17	0.050	11	0.05	0.188	7	0.10				
18	0.061	11	0.06	0.171	7	0.10				16
19	0.080	12 S	0.08	0.178	8	0.12				17
20	0.088	13	0.10	0.177	8	0.14				18
				0.174	9	0.14				19
21	0.080	12 S	0.08							20
22	0.080	14	0.10	0.184	8	0.13				
23	0.098	15	0.12	0.158	8	0.12				21
24	0.112	15 S	0.15	0.170	8	0.12				22
25	0.113	17	0.16	0.281	7	0.15				23
				0.284	7	0.17				24
26	0.105	17	0.16							25
27	0.105	17	0.15	0.288	8	0.18				
28	0.098	16 S	0.14	0.292	7	0.16				26
29	0.085	15	0.12	0.269	7	0.17				27
30	0.084	12	0.09	0.329	7	0.20				28
31				0.334	10	0.28				29
				0.311	8	0.21				30
TOTAL	3.227		3.85	5.880		3.87				31
										TOTAL

MANITOBA

ROSEAU RIVER AT GARDENTON - STATION NO. 05OD004

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1987

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m^3/s)	SINGLE SAMPLING VERTICAL (m)		TYPE OF SAMPLER	INSTANT. CONCENT. (mg/L)	DISSOLVED SOLIDS (mg/L)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	PERCENT SAND	SILT	CLAY
MAR 04	10:30		27.7	9.0		D 45	8	401														
APR 06	13:00	0.5	8.02	9.0	M	DHS9	86	213														
APR 06	13:05	0.5	8.70	9.0	M	DHS9	88	216														
APR 06	13:10	0.5	8.36	13.0	M	DHS9	108	200														
APR 06	13:20	0.5	34.6	9.0		DHS9	106	2 9														
APR 06	13:25	0.5	8.78	17.0	M	DHS9	111	210														
APR 06	13:30	0.5	3.57	18.0	M	DHS9	114	222														
APR 09	10:00	11.0	54.2	9.0		DHS9	71	223														
APR 09	12:30	11.0	54.1	9.0		DHS9	75															
APR 10	12:30	9.0	52.7	9.0		DHS9	67															
APR 10	17:15	10.0	52.7	9.0		DHS9	66															
APR 11	18:30	6.5	53.2	9.0		DHS9	45															
APR 12	10:30	7.0	53.8	9.0		DHS9	47															
APR 13	18:00	9.0	53.2	9.0		DHS9	36															
APR 14	12:30	9.0	52.7	9.0		DHS9	38															
APR 15	16:00	12.0	51.8	9.0		DHS9	42	218														
APR 17	10:30	11.0	50.5	9.0		DHS9	34															
APR 18	10:00	13.0	49.6	9.0		DHS9	32															
APR 20	12:30	13.0	48.3	9.0		DHS9	27															
APR 22	08:30	10.0	46.9	9.0		DHS9	25	227														
APR 24	08:45	11.0	43.1	9.0		DHS9	21															
APR 26	08:30	12.0	40.0	9.0		DHS9	19															
APR 28	08:00	12.0	33.8	9.0		DHS9	18															
APR 29	08:45	12.0	29.1	9.0		DHS9	17															
APR 30	08:15	12.0	24.1	9.0		DHS9	17	284														
MAY 04	12:15	14.0	9.30	9.0		DHS9	14															
MAY 06	09:00	14.0	7.04	9.0		DHS9	13															
MAY 07	12:30	16.5	5.98	9.0		DHS9	11	308														
MAY 09	08:00	16.5	4.50	9.0		DHS9	11															
MAY 11	12:45	16.5	7.06	9.0		DHS9	11															
MAY 14	09:00	15.5	4.39	9.0		DHS9	12	309														
MAY 15	12:45	18.0	3.11	9.0		DHS9	10															
MAY 18	12:45	15.0	1.44	9.0		DHS9	10															
MAY 22	14:00	12.0	7.46	9.0		DHS9	19	287														
MAY 24	09:15	13.0	18.4	9.0		DHS9	57															
MAY 25	09:00	12.0	18.5	9.0		DHS9	61															
MAY 27	08:45	13.0	20.2	9.0		DHS9	56															
MAY 28	08:30	16.0	21.6	9.0		DHS9	55	298														
JUN 01	09:00	22.0	20.6	9.0		DHS9	61															
JUN 03	12:30	16.0	18.2	9.0		DHS9	44	267														
JUN 08	14:30	22.0	7.18	9.0		DHS9	34															
JUN 14	15:45	26.0	5.83	9.0		DHS9	38	295														
JUN 15	14:30	26.0	4.88	9.0		DHS9	33															
JUN 22	15:30	29.0	1.70	9.0		DHS9	38	271														
JUN 24	16:00	28.0	2.40	9.0		DHS9	38															
JUN 24	16:01	25.0	2.40	9.0		DHS9	41															
JUN 28	15:00	22.0	1.10	9.0		DHS9	45	279														
JUN 28	15:01	22.0	1.10	9.0		DHS9	44	281														
JUL 02	16:00	21.0	0.899	9.0		DHS9	34															
JUL 06	10:00	24.0	0.479	9.0		DHS9	27	302														
JUL 11	10:00	23.0	0.323	9.0		DHS9	26															
JUL 14	08:30	18.0	0.264	9.0		DHS9	21	283														
JUL 17	08:30	22.0	0.442	9.0		DHS9	27															
JUL 21	10:20	18.0	1.61	9.0		DHS9	26	281														
JUL 22	14:00	22.0	5.48	9.0		DHS9	40															
JUL 25	11:30	25.0	4.88	9.0		DHS9	36															
JUL 27	10:30	25.0	3.68	9.0		DHS9	35															
JUL 29	14:00	29.0	2.35	9.0		DHS9	28	286														
JUL 31	17:00	27.0	1.77	9.0		DHS9	30															
AUG 04	08:30	21.0	0.608	9.0		DHS9	27	286														
AUG 06	19:30	25.0	0.554	9.0		DHS9	21															
AUG 11	11:05	24.0	0.445	9.0		DHS9	20	309														
AUG 12	14:30	21.0	0.404	9.0		DHS9	14															
AUG 15	15:30	21.0	0.322	9.0		DHS9	18	291														
AUG 19	10:30	19.0	0.259	9.0		DHS9	16															
AUG 21	10:30	20.0	0.261	9.0		DHS9	17															
AUG 23	15:30	18.5	0.311	9.0		DHS9	10	276														
AUG 28	20:00	19.0	0.228	9.0		DHS9	12															
AUG 28	20:20	19.0	0.226	9.0		DHS9	14															
AUG 31	15:00	18.0	0.193	9.0		DHS9	10	284														
SEP 04	15:00	19.5	0.138	9.0		DHS9	12															
SEP 07	19:30	18.5	0.141	9.0		DHS9	11	294														
SEP 10	12:30	16.0	0.135	9.0		DHS9	14															
SEP 16	10:40	17.0	0.048	9.0		DHS9	8	283														
SEP 19	15:30	15.5	0.085	9.0		DHS9	13															
SEP 21	13:00	15.0	0.078	9.0		DHS9	11	289														
SEP 24	12:30	15.0	0.118	9.0		DHS9	16															
SEP 28	12:30	14.0	0.087	9.0		DHS9	15	291														
OCT 02	17:30	11.0	0.086	9.0		DHS9	10															
OCT 05	15:00	9.0	0.111	9.0		DHS9	8	287														
OCT 11	14:30	5.0	0.183	9.0		DHS9	7	312														
NOV 04	14:07	3.0	0.280	9.0		DHS9	8	326														

NOTE : SINGLE VERTICAL LOCATED AT 9.0 METRES FOR 1987

VERTICAL SYMBOL(S): M - A SEDIMENT MEASUREMENT VERTICAL

MANITOBA

ROSEAU RIVER AT GARDENTON - STATION NO. 05OD004

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF OPERATION SUMMARY (JFMAMJJASOND)	TYPE OF SAMPLING	SAMPLED CONCENTRATION MAXIMUM (mg/L)		SAMPLED CONCENTRATION MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		SUSPENDED SEDIMENT LOAD TOTAL FOR PERIOD (TONNES)	SUMMARY - MAR-OCT MEAN LOAD (TONNES)	SUMMARY - MAR-OCT HISTORICAL MEAN LOAD (TONNES)	SUMMARY - MAR-OCT STANDARD ERROR OF MEAN %
1972	-------CCCC-	MANUAL	22	AUG 12	2	NOV 02	4.17	AUG 13	88.9	---	---	---
1973	---CCCCCCC--	MANUAL	48	OCT 02	1	JUN 16 *	87.9	OCT 02	2 030	---	---	---
1974	---PCCCCCCC-	MANUAL	322	MAY 20 *	5	OCT 08	2 450	MAY 20 *	33 400 *	---	---	---
1975	---CCCCCCCP-	MANUAL	217	APR 22	3	SEP 19	652	MAY 05	20 800	---	---	---
1976	--CCCCCCCC--	MANUAL	240	APR 06	7	AUG 11	728	APR 06	7 320	29.9	28.9	---
1977	--CCCCCCCC--	MANUAL	226	MAY 19	2	MAY 12	42.4	MAY 31	870	3.86	16.9	76.7
1978	--CCCCCCCC--	MANUAL	186	APR 18	5	OCT 05	783	APR 18	10 800	43.1	25.7	44.7
1979	--CCCCCCCC--	MANUAL	197	APR 21	5	JUL 04	854	APR 21	13 700	56.0	33.2	33.6
1980	--CCCCCCCC--	MANUAL	122	APR 13	5	OCT 20	314	APR 14	2 110	8.59	26.3	35.1
1981	--CCCCCCCC--	MANUAL	31	JUN 16	6	MAR 26	45.7	JUL 04	1 540	5.27	24.6	36.2
1982	--CCCCCCCC--	MANUAL	73	APR 17	5	JUN 27	260	APR 15	7 020	28.7	26.2	29.9
1983	--CCCCCCCC--	MANUAL	87	APR 06	4	JUN 11	390	APR 08	6 880	28.0	25.6	26.5
1984	-PCCCCCCCC--	MANUAL	172	APR 4	3	JUN 2	584	APR 04	7 230	29.5	26.0	22.2
1985	--CCCCCCCCP-	MANUAL	183	APR 3	12	MAY 6	282	APR 04	12 400	50.5	28.5	20.1
1986	--CCCCCCCCP-	MANUAL	214	MAR 31	8	MAR 18	812	MAR 31	17 200	70.2	32.2	18.8
1987	--CCCCCCCCP-	MANUAL	114	APR 6	7	OCT 11	580	APR 08	7 450	30.4	32.1	18.3

MANUAL - MANUAL SAMPLING

C - COMPLETE MONTH

P - PARTIAL MONTH

* - EXTREME FOR PERIOD OF RECORD

MANITOBA

ROSEAU RIVER NEAR DOMINION CITY - STATION NO. 05OD001

SUSPENDED SEDIMENT FOR 1967

LOCATION: LAT 49 11 53 N LONG 97 03 15 W
DRAINAGE AREA: 5 200 km²
TYPE OF FLOW: NATURAL
TYPE OF GAUGE: RECORDING

TOTAL SUSPENDED SEDIMENT LOAD 17 400 TONNES FOR THE PERIOD MAR 01 TO NOV 04

REMARKS:

DAY	MAR DAILY DISCHARGE (m³/s)	MAR MEAN CONCENTRATION (mg/L)	MAR DAILY LOAD (t)	APR DAILY DISCHARGE (m³/s)	APR MEAN CONCENTRATION (mg/L)	APR DAILY LOAD (t)	MAY DAILY DISCHARGE (m³/s)	MAY MEAN CONCENTRATION (mg/L)	MAY DAILY LOAD (t)	DAY
1	0.567 B	6	0.28	22.6 B	77	152	22.8	51 S	100	1
2	0.577 B	6	0.30	24.0 B	78	164	16.2	47 S	73.8	2
3	0.588 B	6	0.30	27.8 B	76	183	14.8	46 S	58.2	3
4	0.583 B	6	0.30	33.5 B	85	246	12.7	37 S	40.6	4
5	0.582 B	7	0.35	43.9 B	103	391	11.1	32 S	30.7	5
6	0.588 B	6	0.41	57.2 B	136	672	9.72	37 S	31.1	6
7	0.614 B	6	0.42	83.4 B	185 S	1 070	8.84	49 S	38.2	7
8	0.638 B	7	0.38	87.8	287 S	1 740	7.71	26 S	18.7	8
9	0.622 B	6	0.32	71.4	161 S	883	7.80	35 S	18.4	9
10	0.648 B	6	0.50	66.0	126 S	734	7.46	26 S	16.8	10
11	0.687 B	8	0.63	65.2	120 S	678	8.25	31 S	22.1	11
12	0.716 B	8	0.58	63.9	104 S	574	8.26	26 S	18.6	12
13	0.714 B	9	0.58	63.4	95 S	520	7.82	24 S	16.4	13
14	0.722 B	9	0.55	62.3	93 S	501	7.40	27 S	17.3	14
15	0.748 B	8	0.52	60.8	91 S	478	6.38	27 S	14.8	15
16	0.788 B	12	0.82	59.1	93 S	476	4.72	24 S	9.78	16
17	1.83 B	28	3.84	56.8	85 S	417	3.85	21 S	7.17	17
18	0.840 B	32	2.60	55.1	88 S	424	3.64	15 S	4.88	18
19	0.722 B	27	1.68	53.6	91 S	421	3.48 A	16 S	4.78	19
20	0.813 B	24	1.68	51.7	93 S	415	3.44 E	16 S	4.76	20
21	1.34 B	22	2.55	48.2	78 S	332	3.41 A	16 S	5.30	21
22	4.07 B	31	10.9	46.5	73 S	306	3.41	17 S	6.01	22
23	5.31 B	50	22.9	46.8	76 S	308	5.79	33 S	16.6	23
24	12.2 B	63	66.4	45.0	83 S	345	11.0	58 S	55.1	24
25	13.4 B	68	78.7	43.8	80 S	328	14.7	73 S	92.7	25
26	15.0 B	74	95.9	41.8	57 S	206	16.5	94 S	134	26
27	18.5 B	78	125	39.5	82 S	212	17.9	88 S	138	27
28	20.9 B	78	141	36.5	84 S	183	18.2	84 S	138	28
29	18.4 B	74	124	32.6	87 S	161	20.1	81 S	141	29
30	20.1 B	78	137	27.9	84 S	130	20.4	81 S	143	30
31	20.8 B	75	136				20.5	78 S	138	31
TOTAL	185.503		856.38	1 483.4		13 555	330.86		1 549.50	TOTAL

DAY	JUN DAILY DISCHARGE (m³/s)	JUN MEAN CONCENTRATION (mg/L)	JUN DAILY LOAD (t)	JUL DAILY DISCHARGE (m³/s)	JUL MEAN CONCENTRATION (mg/L)	JUL DAILY LOAD (t)	AUG DAILY DISCHARGE (m³/s)	AUG MEAN CONCENTRATION (mg/L)	AUG DAILY LOAD (t)	DAY
1	20.4	78 S	137	1.33	38 S	4.48	1.55	50 S	6.70	1
2	20.3	76 S	133	1.32	36 S	4.11	1.37	47	5.58	2
3	19.6	75 S	127	1.12	33 S	3.19	1.21	42	4.39	3
4	18.0	70 S	108	0.980	33 S	2.82	1.04	36 S	3.23	4
5	16.1	68 S	94.6	0.898	32	2.48	0.908	35	2.76	5
6	13.7	67 S	87.5	0.823	34 S	2.42	0.803	33	2.28	6
7	11.3	61	49.6	0.762	35	2.36	0.709	29 S	1.78	7
8	9.00	46 S	37.3	0.734	36 S	2.26	0.680	26	1.53	8
9	7.45	45 S	28.0	0.737	37 S	2.36	0.627	31	1.68	9
10	8.51	42 S	33.6	0.831	45 S	3.23	0.577	32 S	1.60	10
11	8.06	43 S	32.8	0.886	43	3.22	0.525	37 S	1.66	11
12	8.61	45 S	31.8	0.809	38	2.68	0.515	41	1.82	12
13	8.42	45 S	31.1	0.776	34 S	2.29	0.480	38	1.62	13
14	8.38	45 S	30.8	0.687	33	1.90	0.455	32 S	1.53	14
15	8.30	45 S	30.8	0.589	32 S	1.63	0.736	68	3.89	15
16	4.74	46	18.6	0.552	32	1.53	0.518	47	2.11	16
17	4.22	46 S	17.5	0.546	28 S	1.32	0.448	40 S	1.65	17
18	3.57	47 S	14.5	0.592	31	1.58	0.410	41	1.45	18
19	3.61	44 S	10.7	1.26	47 S	5.13	0.368	38 S	1.21	19
20	2.83	48 S	10.1	1.58	40 S	5.80	0.338	40	1.16	20
21	2.64	50	11.0	1.54	42 S	5.58	0.328	43	1.21	21
22	2.35	58 S	12.0	1.79	48	7.11	0.320	48 S	1.27	22
23	3.02	47 S	8.20	3.87	89 S	22.6	0.314	44	1.19	23
24	1.68	43 S	7.02	4.45	61	23.5	0.297	44 S	1.13	24
25	2.11	48 S	8.39	4.04	55 S	19.2	0.278	40	0.95	25
26	2.35	40 S	8.12	3.84	53	16.7	0.324	40	1.12	26
27	2.03	37 S	6.48	3.29	51 S	14.5	0.287	39	1.00	27
28	1.76	35	5.32	2.83	52	12.7	0.263	41 S	0.93	28
29	1.59	35 S	4.81	2.36	52	10.6	0.213	48	0.84	29
30	1.42	37 S	4.54	1.89	54 S	8.28	0.197	52	0.89	30
31				1.78	55	8.48	0.189	65 S	1.06	31
TOTAL	208.08		1 082.28	48.482		308.73	17.382		80.82	TOTAL

A - MANUAL GAUGE B - ICE CONDITIONS E - ESTIMATED S - SAMPLE(S) COLLECTED THIS DAY

ROSEAU RIVER NEAR DOMINION CITY - STATION NO. 05OD001

SUSPENDED SEDIMENT FOR 1987

DAY	SEP DAILY DISCHARGE (m^3/s)	SEP MEAN CONCENTRATION (mg/L)	SEP DAILY LOAD (t)	OCT DAILY DISCHARGE (m^3/s)	OCT MEAN CONCENTRATION (mg/L)	OCT DAILY LOAD (t)	NOV DAILY DISCHARGE (m^3/s)	NOV MEAN CONCENTRATION (mg/L)	NOV DAILY LOAD (t)	DAY
1	0.152	56	0.93	0.200	45	0.78	0.555	10	0.48	1
2	0.141	43	0.52	0.174	41	0.62	0.553	10	0.48	2
3	0.128	41 S	0.45	0.212	36 S	0.68	0.555	9	0.43	3
4	0.120	43	0.45	0.259	39	0.91	0.538 A	11 S	0.51	4
5	0.118	45	0.46	0.283	40	0.98	0.525 E			5
6	0.141	41	0.50	0.302	39	1.02	0.513 E			6
7	0.134	39 S	0.45	0.336	40 S	1.16	0.503 E			7
8	0.083	40	0.28	0.350	44	1.33	0.490 E			8
9	0.101	45	0.40	0.352	45	1.37	0.474 E			9
10	0.108	61 S	0.56	0.357	43 S	1.33	0.468 E			10
11	0.129	81	0.90	0.364	38	1.13	0.455 E			11
12	0.134	98 S	1.15	0.368	30	1.01	0.444 E			12
13	0.114	93	0.92	0.426	27	0.98	0.433 E			13
14	0.113	85	0.83	0.407	21 S	0.74	0.424 E			14
15	0.072	46 S	0.29	0.423	21	0.77	0.586 E			15
16	0.036	48 S	0.18	0.427	21	0.77	0.535 E			16
17	0.069	47	0.28	0.424	18 S	0.66	0.506 E			17
18	0.056	43	0.21	0.416	23	0.82	0.477 E			18
19	0.088	43 S	0.33	0.430	23	0.85	0.450 E			19
20	0.082	42	0.33	0.426	23	0.84	0.424 E			20
21	0.088	45	0.35	0.456	21	0.83	0.383 E			21
22	0.057	48 S	0.24	0.428	26	0.96	0.388 E			22
23	0.058	48	0.25	0.438	24 S	0.91	0.380 E			23
24	0.105	80	0.54	0.462	22	0.86	0.382 E			24
25	0.088	66	0.50	0.456	22	0.86	0.359 E			25
26	0.085	64 S	0.47	0.455	25	0.98	0.344 E			26
27	0.113	62	0.61	0.479	23 S	0.95	0.354 E			27
28	0.144	60	0.75	0.528	18	0.82	0.388 E			28
29	0.188	57 S	0.83	0.512	15	0.68	0.358 E			29
30	0.227	51	1.00	0.526	11	0.50	0.347 E			30
31				0.536	8 S	0.28				31
TOTAL	3.320		16.04	12.229		27.35	13.490		1.80	TOTAL

ROSEAU RIVER NEAR DOMINION CITY - STATION NO. 05DD001

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1987

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m^3/s)		SINGLE VERTICAL SAMPLING (m)	TYPE OF SAMPLER	INSTANT. CONCENT. (mg/L)		DISSOLVED SOLIDS (mg/L)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	PERCENT SAND	SILT	CLAY
APR 07	17:15	5.0	83.4	W	85.0	DH59	216		306														
APR 08	08:10	5.0	88.5		85.0	DH59	337	C															
APR 08	16:50	11.0	70.1		85.0	DH59	276																
APR 09	09:15	8.0	72.0		85.0	DH59	153		213														
APR 09	17:45	10.0	70.8		85.0	DH59	138																
APR 10	08:45	8.0	68.4		85.0	DH59	124																
APR 11	08:45	7.0	65.3		85.0	DH59	114																
APR 11	08:50	9.0	65.3		85.0	DH59	127																
APR 11	17:10	8.0	64.8		85.0	DH59	117																
APR 12	07:30	7.0	64.0		85.0	DH59	104																
APR 13	08:30	7.0	63.5		85.0	DH59	96																
APR 13	17:50	8.0	63.2		85.0	DH59	92																
APR 14	08:30	7.0	62.5		85.0	DH59	94		223														
APR 15	08:30	8.0	61.0		85.0	DH59	90																
APR 16	08:30	10.0	59.4		85.0	DH59	94																
APR 17	08:10	10.0	57.1		85.0	DH59	84																
APR 18	09:30	11.0	55.3		85.0	DH59	90																
APR 19	07:30	8.0	54.0		85.0	DH59	90																
APR 20	08:30	12.0	52.0		85.0	DH59	97																
APR 21	08:30	10.0	49.1		85.0	DH59	80		225														
APR 22	08:30	8.0	48.8		85.0	DH59	72																
APR 23	08:30	10.0	47.3		85.0	DH59	80																
APR 24	09:05	10.0	45.2		85.0	DH59	83																
APR 25	09:15	10.0	43.8		85.0	DH59	82																
APR 26	10:05	11.0	42.1		85.0	DH59	88																
APR 27	08:15	11.0	40.0		85.0	DH59	95																
APR 28	08:30	12.0	37.0		85.0	DH59	88		261														
APR 29	08:30	12.0	33.3		85.0	DH59	88																
APR 30	08:30	12.0	28.5		85.0	DH59	84																
MAY 01	08:30	11.0	23.5		85.0	DH59	91																
MAY 02	08:30	12.0	18.7		85.0	DH59	45																
MAY 03	08:45	12.0	15.2		85.0	DH59	47																
MAY 04	08:45	13.0	13.0		85.0	DH59	36																
MAY 05	09:05	14.0	11.3		85.0	DH59	32		317														
MAY 06	08:15	14.0	9.92		85.0	DH59	31																
MAY 07	08:30	14.0	8.65		85.0	DH59	53																
MAY 08	08:50	14.0	7.87		85.0	DH59	28																
MAY 09	08:30	15.0	7.61		85.0	DH59	26																
MAY 10	08:00	15.0	7.30		85.0	DH59	26																
MAY 11	08:45	14.0	8.27		85.0	DH59	34		318														
MAY 12	08:30	14.0	8.28		85.0	DH59	27																
MAY 13	08:45	12.0	7.88		85.0	DH59	24																
MAY 14	08:45	15.0	7.55		85.0	DH59	26																
MAY 15	08:10	15.0	6.62		85.0	DH59	28																
MAY 16	08:15	16.0	4.73		85.0	DH59	23																
MAY 17	08:30	14.0	4.01		85.0	DH59	18																
MAY 18	08:30	12.0	3.84		85.0	DH59	16		345														
MAY 19	09:00	13.0	3.45		85.0	DH59	16																
MAY 20	07:45	13.0	3.43		85.0	DH59	18																
MAY 21	08:30	10.0	3.40		85.0	DH59	20																
MAY 22	08:45	8.0	3.40		85.0	DH59	13																
MAY 23	09:30	12.0	5.36		85.0	DH59	30																
MAY 24	08:30	13.0	10.4		85.0	DH59	88																
MAY 25	08:30	13.0	14.4		85.0	DH59	88		347														
MAY 26	08:45	13.0	16.4		85.0	DH59	96																
MAY 27	08:50	14.0	17.7		85.0	DH59	91																
MAY 28	09:00	18.0	18.1		85.0	DH59	88																
MAY 29	08:45	17.0	20.1		85.0	DH59	83																
MAY 30	08:45	18.0	20.4		85.0	DH59	83																
MAY 31	08:00	18.0	20.5		85.0	DH59	77		288														
JUN 01	08:50	20.0	20.5		85.0	DH59	80																
JUN 02	08:30	18.0	20.3		85.0	DH59	76																
JUN 03	08:00	11.0	19.8		85.0	DH59	78																
JUN 04	08:30	12.0	18.3		85.0	DH59	89																
JUN 05	08:30	12.0	16.4		85.0	DH59	85																
JUN 08	09:30	13.0	13.8		85.0	DH59	56		286														
JUN 09	08:45	18.0	9.26		85.0	DH59	47																
JUN 09	08:30	18.0	7.57		85.0	DH59	48																
JUN 10	08:35	19.0	6.82		85.0	DH59	43																
JUN 11	08:50	18.0	6.17		85.0	DH59	43																
JUN 12	08:45	20.0	5.58		85.0	DH59	45																
JUN 13	10:30	22.0	5.42		85.0	DH59	44		292														
JUN 14	10:10	23.0	5.37		85.0	DH59	48																
JUN 15	08:40	21.0	5.37		85.0	DH59	48																
JUN 17	08:45	23.0	4.30		85.0	DH59	49																
JUN 18	08:30	24.0	3.73		85.0	DH59	45																
JUN 19	08:35	22.0	2.85		85.0	DH59	45																
JUN 20	09:50	23.0	2.63		85.0	DH59	47		309														
JUN 22	08:45	24.0	2.38		85.0	DH59	63																
JUN 23	08:30	25.0	2.05		85.0	DH59	48																
JUN 24	08:30	22.0	1.88		85.0	DH59	42																
JUN 25	08:30	21.0	2.04		85.0	DH59	45																
JUN 26	08:45	18.0	2.38		85.0	DH59	41																
JUN 27	08:45	17.0	2.06		85.0	DH59	38		303														
JUN 28	08:45	17.0	1.81		85.0	DH59	38																
JUN 30	08:45	18.0	1.43		85.0	DH59	37																
JUL 01	10:10	19.0	1.31		85.0	DH59	38																
JUL 02	08:45	19.0	1.33		85.0	DH59	38																
JUL 03	08:45	18.0	1.12		85.0	DH59	33																
JUL 04	08:50	19.0	1.02		85.0	DH59	33		310														
JUL 06	08:45	22.0	8.37		85.0	DH59	35																
JUL 08	08:20	22.0	0.743		85.0	DH59	38																
JUL 09	08:45	22.0	0.781		85.0	DH59	35																
JUL 10	08:30	22.0	0.800		85.0	DH59	48		300														
JUL 13	08:45	11.0	0.786		85.0	DH59	34																
JUL 16	09:10	12.0	0.591		85.0	DH59	33																
JUL 17	09:20	20.0	0.544		85.0	DH59	27		305														
JUL 19	10:45	18.0	1.30		85.0	DH59	44		285														
JUL 20	14:00	21.0	1.80		85.0	DH59	35																
JUL 21	09:30	21.0	1.84		85.0	DH59	43																
JUL 23	09:15	19.0	3.92		85.0	DH59	85																
JUL 25	10:30	22.0	4.08		85.0	DH59	52		280														

NOTE : SINGLE VERTICAL LOCATED AT 85.0 METRES FOR 1987

DISCHARGE SYMBOL(S): W - DAILY MEAN, ICE CONDITIONS
CONCENTRATION SYMBOL(S): C - COARSE MATERIAL PRESENT

CONTINUED

ROSEAU RIVER NEAR DOMINION CITY - STATION NO. 05OD001 (CONTINUED)

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1987

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m^3/s)		SINGLE SAMPLING VERTICAL (m)	TYPE OF SAMPLER	INSTANT. CONCENT. (mg/L)	DISSOLVED SOLIDS (mg/L)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	PERCENT SAND	SILT	CLAY
JUL 27	09:30	23.0	3.35		85.0	DH59	50															
JUL 30	09:45	25.0	1.99		85.0	DH59	64															
AUG 01	10:10	25.0	1.56		85.0	DH59	50	288														
AUG 04	08:10	19.0	1.04		85.0	DH59	37															
AUG 07	08:20	18.0	0.716		85.0	DH59	30	284														
AUG 10	10:45	20.0	0.584		85.0	DH59	33															
AUG 11	08:45	22.0	0.512		85.0	DH59	37															
AUG 14	09:50	12.0	0.457		85.0	DH59	27	281														
AUG 17	08:45	11.0	0.455		85.0	DH59	38															
AUG 18	08:45	15.0	0.385		85.0	DH59	37															
AUG 22	09:30	15.0	0.320		85.0	DH59	48	282														
AUG 24	08:30	14.0	0.291		85.0	DH59	45															
AUG 28	09:10	16.0	0.269		85.0	DH59	40	286														
AUG 31	08:15	13.0	0.188		85.0	DH59	77															
SEP 03	09:15	15.0	0.123		85.0	DH59	39	289														
SEP 07	09:15	11.0	0.139		85.0	DH59	40															
SEP 10	09:10	14.0	0.115		85.0	DH59	62	316														
SEP 12	10:15		0.141		85.0	DH59	101															
SEP 15	15:40	22.0	0.081		85.0	DH59	33															
SEP 16	09:20	15.0	0.034		85.0	DH59	50	308														
SEP 18	09:45	13.0	0.087		85.0	DH59	40															
SEP 22	09:30	13.0	0.050		85.0	DH59	48	315														
SEP 26	13:15	15.0	0.084		85.0	DH59	62															
SEP 29	08:45	11.0	0.172		85.0	DH59	57	323														
OCT 03	10:00	8.0	0.208		85.0	DH59	34	330														
OCT 07	08:30	6.0	0.335		85.0	DH59	41															
OCT 10	10:00	3.0	0.363		85.0	DH59	44	333														
OCT 14	09:30	5.0	0.405		85.0	DH59	24															
OCT 17	11:45	5.0	0.424		85.0	DH59	19	321														
OCT 27	08:40	2.0	0.454		85.0	DH59	24															
OCT 31	11:45	3.0	0.532		85.0	DH59	7	318														
NOV 04	09:30	4.0	0.538	V	85.0	DH59	18															
NOV 04	11:35	3.0	0.538	V	85.0	DH59	5	323														

NOTE : SINGLE VERTICAL LOCATED AT 85.0 METRES FOR 1987

DISCHARGE SYMBOL(S): V - DAILY MEAN; MANUAL GAUGE

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF OPERATION SUMMARY (JFMAMJJASOND)	TYPE OF SAMPLING	SAMPLED CONCENTRATION MAXIMUM (mg/L)		SAMPLED CONCENTRATION MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		SUSPENDED SEDIMENT LOAD TOTAL FOR PERIOD (TONNES)	SUMMARY : MAR-OCT MEAN LOAD (TONNES)	HISTORICAL MEAN LOAD (TONNES)	STANDARD ERROR OF MEAN %
1972	-------CCCC-	MANUAL	103	SEP 05	8	OCT 27	8.59	AUG 14	224	---	---	---
1973	---CCCCCCC--	MANUAL	118	OCT 10	10	APR 23	228	SEP 30	3 880	---	---	---
1974	---PCCCCCCCC	MANUAL	326	APR 18	6	OCT 30	1 850	APR 18	46 800	---	---	---
1975	---PCCCCCC--	MANUAL	314	APR 23	12	OCT 03	1 850	MAY 08	49 100 *	---	---	---
1976	--CCCCCCCC--	MANUAL	514	APR 07	16	OCT 08	1 870	APR 07	13 400	54.8	54.8	---
1977	--CCCCCCCC--	MANUAL	169	APR 11	10	MAR 18	194	APR 12	1 810	6.57	30.7	78.6
1978	--CCCCCCCC--	MANUAL	331	APR 18	6	OCT 14	1 410	APR 18	25 600	104	55.1	51.0
1979	CCCCCCCCCCCC	MANUAL	287	APR 20	10	OCT 29	1 840	APR 21	37 100	161	79.1	38.4
1980	CCCCCCCCCCC	MANUAL	289	APR 14	8	OCT 26	988	APR 14	5 990	24.2	88.1	38.9
1981	CCCCCCCCCCC	MANUAL	58	JUL 20	6	OCT 02	78.5	JUL 05	3 610	13.5	58.0	38.6
1982	CCCCCCCCCCC	MANUAL	398	OCT 09	6	MAR 11	722	APR 18	21 700	85.4	82.8	32.2
1983	CCCCCCCCCCC	MANUAL	350	APR 08	6	DEC 05	2 920	APR 08 *	24 400	88.7	87.3	28.6
1984	CCCCCCCCCCC	MANUAL	610	MAY 11	5	FEB 28	988	APR 05	12 700	50.1	85.4	24.5
1985	CCCCPCCCCCC	MANUAL	5 770	MAY 15 *	8	JAN 15	1 320	APR 05	30 800	---	---	---
1986	CCCCCCCCCCC	MANUAL	408	MAR 31	8	JAN 6	2 270	MAR 31	48 800	188	78.8	24.8
1987	--CCCCCCCP-	MANUAL	337	APR 8	5	NOV 4 *	1 740	APR 08	17 400	71.2	78.0	22.7

MANUAL - MANUAL SAMPLING

C - COMPLETE MONTH P - PARTIAL MONTH * - EXTREME FOR PERIOD OF RECORD

SOURIS RIVER AT WAWANESA - STATION NO. 05MG001

SUSPENDED SEDIMENT FOR 1987

LOCATION: LAT 49 38 05 N LONG 99 40 55 W
DRAINAGE AREA: 80 400 km²
TYPE OF FLOW: REGULATED
TYPE OF GAUGE: RECORDING

TOTAL SUSPENDED SEDIMENT LOAD 51 700 TONNES FOR THE PERIOD JAN 01 TO DEC 31

REMARKS:

DAY	JAN DAILY DISCHARGE (m³/s)	JAN MEAN CONCENTRATION (mg/L)	JAN DAILY LOAD (t)	FEB DAILY DISCHARGE (m³/s)	FEB MEAN CONCENTRATION (mg/L)	FEB DAILY LOAD (t)	MAR DAILY DISCHARGE (m³/s)	MAR MEAN CONCENTRATION (mg/L)	MAR DAILY LOAD (t)	DAY
1	1.11 B	80	7.67	1.11 B	130	11.5	1.85 B	45	8.03	1
2	1.18 B	80	8.23	1.26 B	123	13.3	1.63 B	39	5.18	2
3	1.17 B	81	8.19	1.33 B	127	14.8	1.85 B	33	4.42	3
4	1.08 B	83	7.80	1.23 B	131	13.9	1.63 B	28	3.44	4
5	1.02 B	88	7.76	1.28 B	133	14.7	1.38 B	20	2.33	5
6	1.08 B	82	8.58	1.22 B	136	14.3	1.14 B	16	1.58	6
7	1.13 B	84	8.18	1.18 B	138	14.2	1.04 B	12	1.08	7
8	1.21 B	86	10.0	1.05 B	142	12.8	1.10 B	10	0.85	8
9	1.26 B	89	10.8	1.20 B	145	15.0	1.44 B	8	1.00	9
10	1.21 B	100	10.5	1.11 B	148	14.2	1.27 B	8 S	0.88	10
11	1.20 B	100	10.4	1.04 B	149	13.4	1.24 B	8	0.86	11
12	1.16 B	101	10.1	0.935 B	151	12.2	1.35 B	8	0.93	12
13	1.07 B	102 S	9.43	0.919 B	153	12.1	1.36 B	8	0.94	13
14	0.987 B	102	8.52	1.08 B	153	14.3	1.36 B	8	0.94	14
15	1.11 B	104	9.97	1.17 B	153	15.5	1.36 B	8	0.94	15
16	1.25 B	107	11.6	1.14 B	153 S	15.1	1.36 B	8	0.94	16
17	1.25 B	108	11.6	1.21 B	151	15.8	1.57 B	10	1.36	17
18	1.32 B	110	12.5	1.20 B	148	15.3	1.84 B	12	1.91	18
19	1.50 B	110	14.3	1.15 B	142	14.1	1.84 B	12	1.70	19
20	1.37 B	110	13.0	1.16 B	134	13.4	1.49 B	12	1.54	20
21	1.27 B	111	12.2	1.23 B	124	13.2	3.31 B	18	5.15	21
22	1.09 B	113	10.6	1.22 B	114	12.0	7.46 B	28	18.0	22
23	1.10 B	114	10.8	1.20 B	102	10.6	3.06 B	18	4.76	23
24	1.15 B	115	11.4	1.21 B	91	9.61	8.07 B	24 S	16.7	24
25	1.26 B	115	12.5	1.36 B	81	9.52	9.48 B	40	32.8	25
26	1.26 B	115	12.5	1.48 B	71	8.86	33.1 B	130 S	259	26
27	1.38 B	115	13.7	1.28 B	61	6.80	47.1 B	227	924	27
28	1.27 B	114	12.5	1.48 B	51	6.43	48.0 B	198	825	28
29	1.14 B	115	11.3				45.3 B	184	803	29
30	1.18 B	115	11.8				45.2 B	132	515	30
31	1.17 B	118	11.9				46.3 B	114	458	31
TOTAL	36.807		331.33	33.384		368.62	314.48		3 898.34	TOTAL

DAY	APR DAILY DISCHARGE (m³/s)	APR MEAN CONCENTRATION (mg/L)	APR DAILY LOAD (t)	MAY DAILY DISCHARGE (m³/s)	MAY MEAN CONCENTRATION (mg/L)	MAY DAILY LOAD (t)	JUN DAILY DISCHARGE (m³/s)	JUN MEAN CONCENTRATION (mg/L)	JUN DAILY LOAD (t)	DAY
1	84.2 B	138	846	44.4	52 S	199	9.87	11	8.19	1
2	89.2 B	166	1 120	44.0	47 S	178	9.24	13 S	10.4	2
3	77.6 B	324 S	2 180	43.7	47 S	177	8.28	12	8.58	3
4	78.8 B	868 S	4 800	44.2	42 S	180	7.50	11 S	7.13	4
5	80.8 B	1 240 S	8 740	43.4	38 S	142	7.52	11	7.15	5
6	82.2 B	1 480 S	11 800	42.5	37 S	136	7.17	10	6.19	6
7	86.3 B	326 S	2 700	41.5	38 S	136	8.23	10 S	5.36	7
8	74.6 B	181 S	1 040	40.0	28 S	86.6	8.43	10	4.89	8
9	70.1	150 S	808	38.1	25 S	82.3	4.84	11 S	4.69	9
10	69.0	127 S	757	38.1	24 S	74.8	4.83	11	4.68	10
11	67.4	105 S	611	34.0	23 S	67.8	5.18	11	4.92	11
12	65.0	106 S	595	31.8	22 S	60.8	4.84	12	5.12	12
13	63.6	103 S	568	30.1	20 S	52.0	4.73	11	4.80	13
14	62.8	86 S	533	27.6	20	47.5	4.78	11	4.64	14
15	62.1	88 S	528	26.4	20	43.9	5.07	11	4.83	15
16	61.5	86 S	505	24.4	20	42.2	5.14	12 S	5.33	16
17	60.8	83 S	488	21.2	20	38.8	4.73	12	4.90	17
18	60.2	84 S	488	18.4	20 S	28.3	4.67	11	4.44	18
19	59.5	80	463	12.4	17	18.2	4.52	11	4.30	19
20	58.0	85 S	426	10.2	13 S	11.5	4.81	12	4.78	20
21	56.9	75 S	368	8.85	11	8.51	4.86	13	5.67	21
22	55.2	78 S	372	8.72	12	9.04	4.67	13	5.47	22
23	53.3	75 S	346	10.0	15	13.0	4.74	13	5.32	23
24	51.3	68 S	301	9.71	14	11.7	4.60	12	4.77	24
25	49.7	64 S	276	8.36	12 S	8.66	4.28	11	4.07	25
26	48.5	63 S	264	7.48	10	6.45	4.23	11	4.02	26
27	47.3	66 S	228	8.56	12 S	8.90	4.21	11	4.00	27
28	46.8	64 S	218	10.1	14	13.2	4.44	12	4.60	28
29	46.0	62 S	207	10.7	15	13.9	4.64	12	4.71	29
30	45.0	52 S	202	10.3	13 S	11.6	4.51	12	4.68	30
31				8.83	11	8.15				31
TOTAL	1 895.3		43 877	753.90		1 904.51	184.68		182.05	TOTAL

B - ICE CONDITIONS

S - SAMPLE(S) COLLECTED THIS DAY

SOURIS RIVER AT WAWANESA - STATION NO. 05NG001

SUSPENDED SEDIMENT FOR 1987

DAY	JUL DAILY DISCHARGE (m^3/s)	JUL MEAN CONCENTRATION (mg/L)	JUL DAILY LOAD (t)	AUG DAILY DISCHARGE (m^3/s)	AUG MEAN CONCENTRATION (mg/L)	AUG DAILY LOAD (t)	SEP DAILY DISCHARGE (m^3/s)	SEP MEAN CONCENTRATION (mg/L)	SEP DAILY LOAD (t)	DAY
1	4.44	11	4.32	2.77	78	18.7	10.8	30	28.3	1
2	4.30	10	3.72	3.21	78	21.6	11.0	28	26.8	2
3	4.08	10	3.51	3.57	78	23.4	10.8	27	25.4	3
4	3.97	12	4.12	4.08	78	26.2	10.8	28	24.5	4
5	4.23	13	4.75	4.62	74 S	28.5	9.94	25	21.5	5
6	5.02	14	6.07	5.10	74	32.8	8.25	23	16.4	6
7	5.80	15	7.26	5.38	74	34.4	6.67	22	12.5	7
8	5.76	15	7.46	5.48	74	34.8	5.27	20	9.11	8
9	6.11	15	7.92	5.79	74	37.0	4.61	20 S	7.79	9
10	6.57	15	8.51	6.07	76	38.8	4.08	20	7.08	10
11	6.62	15	8.58	6.20	76	40.7	3.80	19 S	6.36	11
12	6.38	15	8.27	6.13	74 S	39.2	3.42	19	5.61	12
13	6.41	15	8.31	5.82	74	35.8	3.20	19	5.26	13
14	6.30	15	8.16	5.15	82	36.0	2.99	20	5.17	14
15	5.57	15	7.22	15.6	89	120	2.96	21	5.37	15
16	4.80	15	5.98	10.3	73 S	65.0	2.84	23 S	5.84	16
17	4.00	15	5.18	8.30	83	46.2	3.30	24	6.84	17
18	3.42	15	4.43	8.73	68	34.3	3.35	21	6.08	18
19	3.87	15	5.07	8.01	80	41.5	3.03	17	4.45	19
20	3.21	15 S	4.44	8.38	69	42.8	2.84	15 S	3.81	20
21	3.06	15	3.87	6.84	53	25.9	2.82	15	3.80	21
22	2.59	12 S	2.88	5.34	48	22.1	2.73	17	4.01	22
23	2.27	11	2.16	4.91	42	17.8	2.71	19 S	4.48	23
24	1.82	11	1.73	5.17	38	16.1	2.65	19	4.35	24
25	1.49	14	1.80	5.27	31	14.1	2.61	19	4.28	25
26	1.55	26	3.48	5.18	27 S	12.1	2.66	19	4.24	26
27	1.68	44	6.38	5.70	27	13.3	2.65	19	4.18	27
28	1.80	62	8.67	6.84	27	16.2	2.51	19 S	4.12	28
29	1.53	71 S	8.38	8.73	26	21.1	2.64	19	4.17	29
30	1.55	72	8.64	10.1	28	25.3	2.55	19 S	4.19	30
31	1.88	74	10.6	10.8	30	27.5				31
TOTAL	131.08		183.77	203.88		1 036.3	140.50		275.71	TOTAL

DAY	OCT DAILY DISCHARGE (m^3/s)	OCT MEAN CONCENTRATION (mg/L)	OCT DAILY LOAD (t)	NOV DAILY DISCHARGE (m^3/s)	NOV MEAN CONCENTRATION (mg/L)	NOV DAILY LOAD (t)	DEC DAILY DISCHARGE (m^3/s)	DEC MEAN CONCENTRATION (mg/L)	DEC DAILY LOAD (t)	DAY
1	2.38	18	3.86	1.70	9	1.32	4.35 B	18	8.77	1
2	2.24	17	3.28	1.81	9 S	1.35	4.13 B	18	8.42	2
3	2.08	15 S	2.67	1.61	9	1.25	4.08 B	18	8.31	3
4	1.85	16	2.70	1.62	9	1.26	4.14 B	18	8.44	4
5	2.26	21	4.10	1.88	7	1.00	3.85 B	17	8.85	5
6	2.48	22	4.71	1.71	5	0.85	3.39 B	16	4.69	6
7	2.41	23	4.78	1.75	5	0.78	2.87 B	16	3.87	7
8	2.44	23 S	4.85	1.84	4 S	0.84	2.48 B	16	3.43	8
9	2.51	22	4.77	1.43	4	0.65	2.24 B	16 S	3.10	9
10	2.32	20	4.01	1.78	4	0.81	1.93 B	16	2.87	10
11	2.19	18	3.41	1.93	5	0.83	1.71 B	16	2.36	11
12	2.39	17	3.51	2.31	7	1.40	1.30 B	16	1.80	12
13	2.40	16 S	3.73	2.24	7	1.72	1.19 B	15	1.54	13
14	2.35	17	3.45	3.10	8	2.14	1.02 B	15	1.32	14
15	2.36	18	3.28	3.21	8 S	2.32	0.984 B	15	1.36	15
16	2.42	14	2.93	3.08	8	2.13	0.857 B	14	1.16	16
17	2.45	12	2.54	2.60	8	1.80	0.881 B	14	1.08	17
18	2.38	11 S	2.26	1.84	8	1.13	0.882 B	14	1.07	18
19	2.38	11	2.24	1.73 B	8	1.20	0.785 B	14	0.86	19
20	2.43	11	2.31	1.54 B	8	1.08	0.762 B	14	0.92	20
21	2.54	10	2.19	1.54 B	9	1.20	0.724 B	14	0.88	21
22	2.50	10	2.16	1.58 B	11 S	1.50	0.684 B	14	0.78	22
23	2.48	10	2.13	1.57 B	11	1.48	0.619 B	14	0.75	23
24	2.48	10	2.13	1.45 B	11	1.38	0.603 B	14	0.71	24
25	2.38	10 S	2.06	1.53 B	11	1.45	0.578 B	14	0.70	25
26	2.26	10	1.97	2.33 B	13	2.62	0.537 B	14	0.65	26
27	2.16	10	1.87	3.63 B	15	4.70	0.586 B	13	0.83	27
28	2.00	10	1.73	4.19 B	17	6.15	0.561 B	13	0.81	28
29	1.82	9	1.42	4.63 B	18 S	7.80	0.525 B	13	0.58	38
30	1.75	8	1.36	4.48 B	18	7.37	0.487 B	13	0.55	30
31	1.78	8	1.37				0.434 B	13	0.48	31
TOTAL	70.87		89 78	88.01		80.70	80.141		70.25	TOTAL

B - ICE CONDITIONS

S - SAMPLE(S) COLLECTED THIS DAY

SOURIS RIVER AT WAWANESA - STATION NO. 05NG001

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1987

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m^3/s)		SINGLE SAMPLING VERTICAL (m)		TYPE OF SAMPLER		INSTANT. CONCENT. (mg/L)		DISSOLVED SOLIDS (mg/L)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	PERCENT SAND	SILT	CLAY
JAN 13	10:00	1.0	1.08	B	11.0	X	DH48		102		1180														
FEB 18	12:20	0.5	1.12	B	7.0	X	DH48		153		1200														
MAR 10	11:45	0.5	1.27	P	13.0	X	DH48		8		1480														
MAR 24	11:50	1.0	7.53	B	8.0	X	DH48		24																
MAR 26	18:30	1.0	38.5	B	38.0		SURF		158																
APR 03	10:30	0.5	17.8	B	38.0	M	DH59		150		241														
APR 03	10:45	0.5	14.6	B	28.0	M	DH59		149		226														
APR 03	10:55	0.5	15.4	B	32.0	M	DH59		174		225														
APR 03	11:05	0.5	15.6	B	44.0	M	DH59		157		235														
APR 03	11:15	0.5	9.18	B	50.0	M	DH59		152	C	234														
APR 03	18:10	3.0	77.8	B	38.0		DH59		816		237	17	22	32	50	74	86	90	98	100			14	64	22
APR 04	11:45	4.0	73.6	B	38.0		DH59		466		223	23	33	51	64	77	80	85	98	100			20	47	33
APR 04	17:50	4.0	83.0	B	38.0		DH59		1020		237	13	24	35	47	65	77	83	98	100			23	53	24
APR 05	11:45	2.0	89.3	B	38.0		DH59		1130	C	232														
APR 05	11:48	2.0	89.3	B	38.0		DH59		943	C	223														
APR 05	18:10	4.0	82.6	B	38.0		DH59		1980	C	241														
APR 05	18:11	4.0	82.6	B	38.0		DH59		870	C	232														
APR 06	18:00	8.0	82.7	B	38.0		DH59		2480		268	3	5	7	10	12	14	16	47	85	100		85	9	5
APR 06	19:05	7.0	81.1	B	38.0		DH59		581		285	15	19	30	38	47	63	68	78	88	100		47	34	19
APR 07	12:30	7.0	102		38.0		DH59		377																
APR 07	17:20	7.0	87.2	B	38.0		DH59		185		310														
APR 08	15:30	10.0	71.8	B	38.0		DH59		183		282														
APR 08	18:45	10.0	71.2	B	38.0		DH59		158																
APR 09	15:20	6.0	89.8		38.0		DH59		180																
APR 09	20:10	6.0	88.8		38.0		DH59		148																
APR 10	12:45	7.0	89.0		38.0		DH59		121																
APR 10	14:10	7.0	89.1		38.0		DH59		132																
APR 10	18:30	8.0	88.4		38.0		DH59		128																
APR 11	12:30	5.0	87.5		38.0		DH59		118																
APR 11	18:50	5.0	86.8		38.0		DH59		114																
APR 12	12:10	8.0	84.9		38.0		DH59		105																
APR 12	17:20	9.5	84.5		38.0		DH59		109																
APR 13	12:10	9.0	83.5		38.0		DH59		99																
APR 13	18:00	10.0	83.3		38.0		DH59		97																
APR 14	14:20	9.0	82.8		38.0		DH59		86																
APR 14	18:00	10.0	82.6		38.0		DH59		98																
APR 15	14:10	11.0	82.2		38.0		DH59		86		317														
APR 15	18:50	12.0	82.0		38.0		DH59		97																
APR 16	12:10	11.0	81.8		38.0		DH59		86																
APR 16	17:20	12.5	81.4		38.0		DH59		93																
APR 17	13:30	13.0	80.8		38.0		DH59		93																
APR 17	19:20	14.0	80.6		38.0		DH59		85																
APR 18	12:30	14.0	80.2		38.0		DH59		94																
APR 18	18:45	14.0	58.8		38.0		DH59		92																
APR 20	18:30	12.0	57.5		38.0		DH59		64		311														
APR 21	18:10	14.0	56.8		38.0		DH59		72																
APR 22	18:20	13.5	54.8		38.0		DH59		61																
APR 23	19:00	13.5	52.7		38.0		DH59		72																
APR 24	18:20	14.0	50.7		38.0		DH59		66																
APR 25	18:40	14.0	49.3		38.0		DH59		63																
APR 26	19:00	14.5	48.4		38.0		DH59		63																
APR 27	20:20	15.0	47.2		38.0		DH59		53		399														
APR 28	18:10	17.0	46.7		38.0		DH59		54																
APR 29	18:00	15.0	45.6		38.0		DH59		51																
APR 30	18:10	14.5	44.7		38.0		DH59		53																
MAY 01	18:30	15.0	44.4		38.0		DH59		51																
MAY 02	15:20	15.0	43.9		38.0		DH59		46																
MAY 03	18:45	14.5	43.8		38.0		DH59		47		572														
MAY 04	18:00	15.0	44.0		38.0		DH59		38																
MAY 05	18:15	15.5	43.1		38.0		DH59		38																
MAY 06	18:30	15.0	42.3		38.0		DH59		37																
MAY 07	18:40	19.0	41.0		38.0		DH59		39																
MAY 08	18:20	20.0	39.8		38.0		DH59		24																
MAY 09	18:10	20.0	37.8		38.0		DH59		28		496														
MAY 10	18:05	19.0	36.7		38.0		DH59		23																
MAY 11	18:00	19.0	33.4		38.0		DH59		24																
MAY 12	18:15	20.5	31.3		38.0		DH59		21																
MAY 13	11:20	15.0	5.83		36.0	M	DH59		31		527														
MAY 13	11:35	15.0	5.07		42.0	M	DH59		30		524														
MAY 13	11:40	15.0	4.55		47.0	M	DH59		31		524														
MAY 13	11:45	15.0	7.28		32.0	M	DH59		30		517														
MAY 13	11:50	15.0	8.84		28.0	M	DH59		19		518														
MAY 18	17:00	15.0	15.4		38.0		DH59		20																
MAY 20	17:30	15.0	8.88		38.0		DH59		12																
MAY 25	17:10	17.5	8.09		38.0		DH59		11		583														
MAY 27	18:45	18.0	8.17		38.0		DH59		12		597														
MAY 30	16:20	20.0	10.1		38.0		DH59		13																
JUN 02	18:35	17.5	6.86		38.0		DH59		11																
JUN 04	18:10	18.0	7.40		38.0		DH59		10		615														
JUN 07	19:00	22.0	6.88		38.0		DH59		11																
JUN 09	18:55	21.5	6.88		38.0		DH59		12		646														
JUN 18	14:45	25.0	5.11		38.0		DH59		16																
JUL 20	15:45	21.0	3.08		38.0		DH59		12	C	633														
JUL 22	18:20	23.0	2.53		38.0		DH59		72		486														
JUL 28	18:00	20.0	1.53		38.0		DH59		74		506														
AUG 05	15:30	22.0	4.72		38.0		DH59		74		510														
AUG 12	18:25	18.0	8.12		38.0		DH59		68		508														
AUG 18	19:00	15.0	8.45		38.0		DH59		27		603														
AUG 28	10:45	15.0	5.13		38.0		DH59		20		647														
SEP 09	11:45	15.0	4.48		38.0		DH59		19																
SEP 11	15:47	17.0	3.74		38.0		DH59		23		625														
SEP 16	15:30	20.0	2.95		38.0		DH59		15		616														
SEP 20	15:30	20.0	2.82		38.0		DH59		19																
SEP 23	15:45	15.0	2.70		38.0		DH59		18		639														
SEP 26	14:50	14.0	2.52		38.0		DH59		19																
SEP 30	17:10	14.0	2.55		38.0		DH59		16																
OCT 03	12:52	12.0	2.04		38.0		DH59		23		650														
OCT 08	17:05	8.0	2.40		38.0		DH59		18																
OCT 13	15:48	8.0	2.32		38.0		DH59		11		651														
OCT 18	14:15	5.0	2.37		38.0		DH59		10		647														
OCT 25	14:30	5.0	2.39		38.0		DH59		9		653														
NOV 02	16:45	5.0	1.60		38.0		DH59																		

NOTE : SINGLE VERTICAL LOCATED AT 38 METRES FOR 1987

DISCHARGE SYMBOL(S): B - ICE CONDITIONS

CONCENTRATION SYMBOL(S): C - COARSE MATERIAL PRESENT

C - ORGANIC MATERIAL PRESENT

VERTICAL SYMBOL(S): M - A SEDIMENT MEASUREMENT VERTICAL

X - NOT AT REGULAR SINGLE SAMPLE VERTICAL

CONTINUED

SOURIS RIVER AT WAWANESA - STATION NO. 05NG001 (CONTINUED)

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1987

DATE	TIME	WATER TEMP (°C)	INSTANT. DISCHARGE (m^3/s)	SINGLE SAMPLING VERTICAL (m)	TYPE OF SAMPLER	INSTANT. CONCENT. (mg/L)	DISSOLVED SOLIDS (mg/L)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	PERCENT SAND	SILT	CLAY
NOV 08	14:10	4.0	1.85	38.0	DH59	4	669														
NOV 15	12:30	5.0	3.20	38.0	DH59	8	653														
NOV 22	16:00	2.0	1.63 B	38.0	DH59	11	719														
NOV 29	15:00	2.0	4.70 B	38.0	DH59	19	743														
DEC 06	11:45	0.5	2.23 B	14.0 X	DH48	18	703														
DEC 09	12:00	0.5	2.22 B	38.0	DH59	18	719														

NOTE : SINGLE VERTICAL LOCATED AT 38 METRES FOR 1987

DISCHARGE SYMBOL(S): B - ICE CONDITIONS
VERTICAL SYMBOL(S): X - NOT AT REGULAR SINGLE SAMPLE VERTICAL

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF OPERATION SUMMARY (JFMAMJJASOND)	TYPE OF SAMPLING	SAMPLED CONCENTRATION MAXIMUM (mg/L)		SAMPLED CONCENTRATION MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		SUSPENDED SEDIMENT LOAD TOTAL FOR PERIOD (TONNES)	SUMMARY : MEAN LOAD (TONNES)	SUMMARY : HISTORICAL MEAN LOAD (TONNES)	SUMMARY : STANDARD ERROR OF MEAN %
1980	---CCCCCCCCC	MANUAL	211	DEC 12	5	MAY 13	52.5	DEC 12	1 750	---	---	---
1981	CCCCCCCCCCC	MANUAL	148	JAN 16	5	DEC 22	80.4	MAR 20	2 270	6.23	6.23	---
1982	CCCCCCCCCCC	MANUAL	850	APR 15	5	JUL 26	9 520	APR 15	42 700	117	81.6	69.8
1983	CCCCCCCCCCC	MANUAL	481	APR 08	8	JAN 26	4 950	APR 08	87 700 *	185	103	50.6
1984	CCCCCCCCCCC	MANUAL	138	DEC 13	5	SEP 25	88.8	MAR 24	4 350	11.9	60.0	84.1
1985	CCCCCCCCCCC	MANUAL	551	MAR 25	4	JUN 30 *	4 860	MAR 25	21 700	59.3	78.8	44.5
1986	CCCCCCCCCCC	MANUAL	402	MAY 7	5	NOV 3	1 910	MAY 07	13 300	36.3	68.3	40.8
1987	CCCCCCCCCCC	MANUAL	2 450	APR 8 *	4	NOV 8	11 900	APR 08 *	51 700	142	78.7	32.8

MANUAL - MANUAL SAMPLING

C - COMPLETE MONTH * - EXTREME FOR PERIOD OF RECORD

MANITOBA

SOURIS RIVER NEAR COULTER - STATION NO. 05NF018

SUSPENDED SEDIMENT FOR 1987

LOCATION: LAT 49 05 27 N LONG 100 57 12 W
DRAINAGE AREA: 43 200 km²
TYPE OF FLOW: REGULATED
TYPE OF GAUGE: RECORDING

TOTAL SUSPENDED SEDIMENT LOAD 4 140 TONNES FOR THE PERIOD JAN 01 TO DEC 31

REMARKS:

DAY	JAN DAILY DISCHARGE (m³/s)	JAN MEAN CONCENTRATION (mg/L)	JAN DAILY LOAD (t)	FEB DAILY DISCHARGE (m³/s)	FEB MEAN CONCENTRATION (mg/L)	FEB DAILY LOAD (t)	MAR DAILY DISCHARGE (m³/s)	MAR MEAN CONCENTRATION (mg/L)	MAR DAILY LOAD (t)	DAY
1	0.800 B	8	0.41	1.08 B	2	0.18	0.881 B	2	0.15	1
2	0.785 B	8	0.40	1.11 B	2	0.18	0.868 B	3	0.22	2
3	0.780 B	8	0.39	1.07 B	2	0.18	0.845 B	3	0.22	3
4	0.785 B	8	0.53	1.04 B	2	0.18	0.830 B	2	0.14	4
5	0.748 B	8	0.32	1.00 B	2	0.17	0.828 B	2	0.14	5
6	0.728 B	5	0.31	1.02 B	2	0.18	0.831 B	2	0.14	6
7	0.708 B	5	0.31	1.04 B	2	0.18	0.923 B	3	0.24	7
8	0.685 B	5	0.30	1.02 B	2	0.18	0.717 B	4	0.25	8
9	0.705 B	4	0.24	1.01 B	2	0.17	0.837 B	4	0.29	9
10	0.719 B	4	0.25	0.992 B	2	0.17	0.829 B	5 S	0.36	10
11	0.735 B	4	0.25	0.986 B	2	0.17	0.724 B	5	0.31	11
12	0.786 B	3	0.20	0.947 B	2	0.16	0.699 B	5	0.30	12
13	0.786 B	3	0.20	0.936 B	2	0.16	0.890 B	4	0.24	13
14	0.736 B	3 S	0.18	0.904 B	2	0.16	0.861 B	4	0.24	14
15	0.881 B	3	0.18	0.877 B	2	0.15	0.672 B	4	0.23	15
16	0.702 B	3	0.18	0.852 B	2	0.15	0.673 B	4	0.23	16
17	0.773 B	3	0.20	0.838 B	2	0.14	0.732 B	4	0.25	17
18	0.818 B	3	0.21	0.825 B	2 S	0.14	0.851 B	4	0.30	18
19	0.876 B	3	0.23	0.854 B	2	0.15	0.885 B	4	0.31	19
20	0.909 B	3	0.24	0.856 B	2	0.15	1.23 B	8	0.89	20
21	0.920 B	3	0.24	0.845 B	2	0.15	5.75 B	10	4.88	21
22	0.875 B	3	0.23	0.827 B	2	0.14	9.87 B	8	7.75	22
23	0.846 B	3	0.22	0.808 B	2	0.14	10.8 B	10	9.18	23
24	0.858 B	3	0.22	0.787 B	2	0.14	11.2 B	10	9.68	24
25	0.906 B	3	0.23	0.797 B	2	0.14	14.4 B	10	12.4	25
26	0.955 B	3	0.26	0.818 B	2	0.14	18.5 B	12	20.2	26
27	1.08 B	3	0.28	0.822 B	2	0.14	22.3 B	13	25.0	27
28	1.11 B	3	0.28	0.880 B	2	0.15	26.2 B	14	31.7	28
29	1.12 B	3	0.29				28.8 B	13	32.3	29
30	1.11 B	3	0.28				33.5 B	14	40.5	30
31	1.10 B	3	0.29				37.8 B	15	49.0	31
TOTAL	26.057		8.18	25.814		4.45	236.283		248.08	TOTAL

DAY	APR DAILY DISCHARGE (m³/s)	APR MEAN CONCENTRATION (mg/L)	APR DAILY LOAD (t)	MAY DAILY DISCHARGE (m³/s)	MAY MEAN CONCENTRATION (mg/L)	MAY DAILY LOAD (t)	JUN DAILY DISCHARGE (m³/s)	JUN MEAN CONCENTRATION (mg/L)	JUN DAILY LOAD (t)	DAY
1	39.2 B	14	47.4	37.4	9	29.1	7.51	26 S	18.9	1
2	41.2 B	14	49.8	36.0	8 S	24.9	5.85	22	10.6	2
3	42.7 B	15	55.3	34.9	7 S	21.1	4.30	15 S	7.08	3
4	41.3	15	53.5	33.3	7 S	20.1	4.19	17	6.15	4
5	38.4	14 S	46.4	31.4	9 S	24.4	4.89	14	5.87	5
6	33.6	11 S	33.1	28.8	8 S	20.0	5.80	12 S	5.70	6
7	31.1	12	32.2	27.1	7 S	18.4	5.18	11	4.80	7
8	28.6	15 S	38.8	26.7	8 S	13.8	4.73	10	4.09	8
9	30.7	15	39.8	24.8	8 S	12.9	5.36	12 S	5.47	9
10	31.8	11 S	30.0	23.3	9 S	18.1	5.36	15	5.78	10
11	35.5	12 S	36.8	21.0	9 S	15.3	5.44	13 S	7.23	11
12	39.4	12 S	40.8	20.8	15 S	27.0	5.89	9	4.88	12
13	42.3	11 S	40.1	18.1	22 S	34.4	5.71	11	5.43	13
14	45.8	14 S	55.4	11.5	17 S	15.8	5.49	10	4.74	14
15	47.3	14 S	57.1	8.84	19 S	14.2	6.07	17 S	8.92	15
16	46.1	15 S	63.7	7.05	18 S	11.0	6.88	21	12.4	16
17	45.4	15 S	62.8	6.09	18 S	9.47	7.14	17 S	10.5	17
18	43.9	15 S	56.8	7.78	35 S	23.5	6.51	11	6.19	18
19	43.7	15 S	58.8	10.7	25 S	23.1	6.17	11 S	5.88	19
20	39.0	21 S	70.6	8.90	10	7.69	6.25	11	5.94	20
21	41.1	23 S	81.7	6.80	14 S	6.85	6.58	11	6.25	21
22	42.4	11	40.3	8.80	20	11.4	6.63	11	6.30	22
23	41.0	8 S	31.8	8.88	17	13.2	6.47	12 S	6.71	23
24	41.2	13 S	46.3	9.73	17 S	14.3	6.20	13	6.88	24
25	40.8	13 S	45.8	9.85	17	14 S	5.78	11 S	5.49	25
26	39.1	18 S	80.8	8.48	13 S	9.52	5.36	10	4.82	26
27	38.3	20 S	88.2	7.89	13	8.86	4.74	8	3.68	27
28	38.8	13 S	43.7	8.80	18	14.1	4.25	9	3.30	28
29	38.0	11	36.1	7.44	18 S	12.2	4.81	8 S	3.58	29
30	38.8	10	33.8	8.23	18	8.81	5.74	10	4.98	30
31				8.84	20	11.3				31
TOTAL	1 187.8		1 452.4	510.18		509.00	172.25		199.17	TOTAL

B - ICE CONDITIONS

S - SAMPLE(S) COLLECTED THIS DAY

SOURIS RIVER NEAR COULTER - STATION NO. 05NF016

SUSPENDED SEDIMENT FOR 1987

DAY	JUL DAILY DISCHARGE (m^3/s)	JUL MEAN CONCENTRATION (mg/L)	JUL DAILY LOAD (t)	AUG DAILY DISCHARGE (m^3/s)	AUG MEAN CONCENTRATION (mg/L)	AUG DAILY LOAD (t)	SEP DAILY DISCHARGE (m^3/s)	SEP MEAN CONCENTRATION (mg/L)	SEP DAILY LOAD (t)	DAY
1	6.32	11	6.01	6.13	35 S	18.5	8.20	22	15.6	1
2	6.34	11 S	6.03	6.26	34	18.4	5.65	20	9.76	2
3	6.69	10	5.78	6.12	28	15.3	4.16	40 S	14.4	3
4	6.56	12	6.82	6.20	24	12.8	3.93	61	17.3	4
5	6.23	14	7.64	6.38	20 S	10.8	2.88	50	12.9	5
6	6.03	16 S	8.34	6.01	20	10.4	2.83	49	11.1	6
7	5.87	14 S	7.10	6.00	20	10.4	2.89	49 S	11.0	7
8	5.74	11	5.46	5.44	21	9.87	2.88	49	10.9	8
9	5.81	12	6.82	4.93	21	8.94	2.88	49	10.9	9
10	4.88	19	7.52	4.88	41 S	17.3	2.82	49	10.7	10
11	3.23	21	5.85	4.06	51 S	17.9	2.58	49 S	10.8	11
12	2.47	21	4.48	3.84	49	16.4	2.49	49	10.5	12
13	1.91	21 S	3.47	2.81	46	9.88	2.48	47	10.1	13
14	1.35	21	2.48	6.17	51	27.2	2.40	43	8.92	14
15	1.24	20	2.14	7.76	84 S	43.0	2.43	42 S	8.82	15
16	1.10	20	1.90	3.79	75	24.6	2.35	42	8.53	16
17	1.02	20	1.76	2.24	93 S	18.0	2.44	42	8.85	17
18	1.03	20	1.78	3.25	91	25.6	2.38	42	8.64	18
19	1.92	21	3.48	3.61	78	25.7	2.40	42 S	8.71	19
20	1.55	21 S	2.81	3.90	67	22.6	2.30	41	8.16	20
21	1.24	21	2.35	3.61	83 S	20.7	2.28	39	7.82	21
22	1.18	21	2.10	4.85	88	24.7	2.22	38 S	6.81	22
23	1.14	20	1.97	5.04	60	26.1	2.18	38	6.60	23
24	2.28	21	4.08	5.73	41 S	30.9	2.04	38	6.17	24
25	3.00	21 S	5.44	10.7	36	33.3	1.44	34	4.23	25
26	3.23	21	5.88	11.6	33	33.1	1.24	44	4.71	26
27	3.31	21	6.01	12.0	31 S	32.1	1.81	58 S	6.57	27
28	3.83	23	7.61	11.5	30	30.6	2.08	59	10.7	28
29	4.14	26	9.30	12.0	28	29.0	2.20	58	11.0	29
30	4.77	30	12.4	13.3	26	27.8	2.18	58 S	11.0	30
31	5.88	34	16.5	11.8	24 S	24.5				31
TOTAL	110.53		170.17	205.14		676.89	81.79		284.99	TOTAL

DAY	OCT DAILY DISCHARGE (m^3/s)	OCT MEAN CONCENTRATION (mg/L)	OCT DAILY LOAD (t)	NOV DAILY DISCHARGE (m^3/s)	NOV MEAN CONCENTRATION (mg/L)	NOV DAILY LOAD (t)	DEC DAILY DISCHARGE (m^3/s)	DEC MEAN CONCENTRATION (mg/L)	DEC DAILY LOAD (t)	DAY
1	1.80	60	8.85	1.85	60	8.88	1.01 B	28	2.27	1
2	2.36	104	21.1	1.50	80 S	7.76	0.899 B	26	1.45	2
3	2.01	109 S	18.9	1.71	49 S	7.24	0.403 B	26	0.87	3
4	2.06	108	18.8	1.89	48	7.15	0.214 B	26	0.52	4
5	2.28	102	20.1	1.81	53	8.29	0.144 B	28	0.36	5
6	2.20	88 S	16.8	2.51	59	12.8	0.104 B	28	0.28	6
7	1.98	87	16.6	2.67	63 S	14.5	0.083 B	28	0.21	7
8	1.93	88 S	15.6	2.84	63	15.0	0.113 B	28	0.28	8
9	2.18	82	15.3	2.85	60	14.8	0.172 B	29 S	0.43	9
10	2.08	75 S	13.5	2.71	47 S	11.0	0.142 B	28	0.34	10
11	1.97	72	12.3	1.87	37	5.34	0.152 B	28	0.34	11
12	2.02	67	11.7	1.36	36	4.23	0.136 B	23	0.27	12
13	1.89	61	9.77	1.36	36	4.23	0.120 B	19	0.20	13
14	2.10	41 S	7.44	1.38	36	4.32	0.089 B	14	0.11	14
15	2.02	37	6.48	1.21	35 S	3.88	0.269 B	13	0.29	15
16	2.01	35	6.08	1.35	35	4.08	0.834 B	18	1.04	16
17	2.03	32	6.61	1.33	34	3.81	0.715 B	20	1.24	17
18	2.14	29	6.38	2.18	33	6.22	0.780 B	18	1.17	18
19	2.06	25 S	4.98	8.08	28	12.7	0.738 B	18	1.02	19
20	1.84	27	3.59	8.67	37	13.2	0.704 B	18	0.91	20
21	1.48	36	4.63	5.40	28	13.1	0.888 B	14	0.83	21
22	1.45	48	6.78	5.80	36 S	14.0	0.882 B	13	0.78	22
23	1.21	64	6.88	5.08	31 S	9.18	0.678 B	12	0.70	23
24	1.36	55 S	6.48	4.88 B	16 S	5.33	0.705 B	10	0.61	24
25	1.22	55	5.80	4.23 B	16	5.48	0.732 B	9	0.58	25
26	1.35	58	6.26	4.11	15	5.33	0.740 B	9	0.58	26
27	1.28	60	6.69	4.08	16 S	6.35	0.731 B	9	0.57	27
28	1.23	60	6.38	4.04	16	5.28	0.722 B	8	0.58	28
29	1.19	60 S	6.17	4.08	15	5.08	0.887 B	8	0.54	29
30	1.25	60	6.48	3.60	20	6.22	0.886 B	10	0.58	30
31	1.52	58	7.75				0.886 B	13	0.75	31
TOTAL	55.28		308.87	89.60		248.93	15.008		20.75	TOTAL

B - ICE CONDITIONS

S - SAMPLE(S) COLLECTED THIS DAY

SOURIS RIVER NEAR COULTER - STATION NO. 05NF015

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1987

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m³/s)	SINGLE SAMPLING VERTICAL (m)	TYPE OF SAMPLER	INSTANT. CONCENT. (mg/L)	DISSOLVED SOLIDS (mg/L)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	PERCENT SAND	SILT	CLAY
JAN 14	13:40	0.5	0.738 W	7.0 X	DH48	3	1870														
JAN 14	13:41	0.5	0.738 W	7.0 X	DIP	3															
FEB 18	13:45	0.5	0.825 W	8.0 X	DH48	2	1810														
MAR 10	15:35	0.5	0.829 W	8.0 X	DH48	5	1480														
APR 05	10:25	4.0	6.66	16.0 M	DH59	11	358														
APR 05	10:35	4.0	10.3	23.0 M	DH59	12	321														
APR 05	10:40	4.0	7.95	27.5 M	DH59	12	329														
APR 05	10:55	4.0	7.23	32.0 M	DH59	13	326														
APR 05	11:00	4.0	7.15	36.5 M	DH59	15	316														
APR 05	11:10	4.0	35.0	MID	DH59	14	328														
APR 06	10:21	5.5	32.9	MID	DH59	11															
APR 08	15:50	4.5	30.0	MID	DH59	16															
APR 10	15:00	3.0	31.4	MID	DH59	10															
APR 11	14:01	2.5	36.0	MID	DH59	13															
APR 12	14:20	4.0	39.8	MID	DH59	11															
APR 13	17:20	7.0	42.9	MID	DH59	12															
APR 13	17:31	7.0	42.9	MID	DH59	11															
APR 14	09:15	4.0	45.4	MID	DH59	14	383														
APR 15	19:30	7.0	46.9	MID	DH59	14															
APR 16	19:37	10.0	45.7	MID	DH59	17															
APR 17	18:20	12.0	45.1	MID	DH59	16															
APR 18	19:15	13.5	43.3	MID	DH59	15															
APR 19	14:44	15.0	43.8	MID	DH59	15															
APR 20	20:20	11.5	38.4	MID	DH59	28															
APR 21	17:30	12.0	42.3	MID	DH59	19	381														
APR 23	19:40	13.0	41.1	MID	DH59	9															
APR 24	19:30	12.0	41.4	MID	DH59	15															
APR 25	18:00	13.0	40.5	MID	DH59	10															
APR 26	20:00	13.0	37.4	MID	DH59	24	422														
APR 27	20:15	13.0	38.7	MID	DH59	17															
APR 28	09:30	13.0	39.2	MID	DH59	12	432														
MAY 02	20:00	14.5	35.5	MID	DH59	8															
MAY 03	19:00	12.5	34.4	MID	DH59	6															
MAY 04	20:30	14.5	32.8	MID	DH59	8															
MAY 05	20:00	16.0	30.1	MID	DH59	9	484														
MAY 06	20:15	16.5	27.8	MID	DH59	7															
MAY 07	19:30	16.0	26.7	MID	DH59	7															
MAY 08	19:30	19.0	25.5	MID	DH59	8															
MAY 09	20:00	19.0	24.3	MID	DH59	7															
MAY 10	18:30	18.5	22.3	MID	DH59	9															
MAY 11	20:15	18.0	20.5	MID	DH59	9															
MAY 12	20:00	18.0	20.8	MID	DH59	19	542														
MAY 13	20:40	17.0	18.0	MID	DH59	23															
MAY 14	20:30	18.0	8.44	MID	DH59	14															
MAY 15	20:15	18.0	8.10	MID	DH59	24															
MAY 16	19:15	17.0	6.57	MID	DH59	13															
MAY 17	18:45	17.0	5.72	MID	DH59	24															
MAY 18	20:10	16.5	8.24	MID	DH59	36	449														
MAY 19	19:50	15.0	10.6	MID	DH59	13															
MAY 21	13:30	15.0	4.91	MID	DH59	16															
MAY 24	20:30	15.0	8.85	MID	DH59	17	556														
MAY 26	08:45	14.0	8.83	MID	DH59	12															
MAY 28	20:15	17.5	8.88	MID	DH59	18															
JUN 01	13:00	18.0	7.30	MID	DH59	26	579														
JUN 03	18:00	15.0	4.16	MID	DH59	16															
JUN 08	21:15	24.5	5.55	MID	DH59	12	583														
JUN 09	20:50	20.0	5.67	MID	DH59	14															
JUN 11	20:45	27.0	6.16	MID	DH59	10															
JUN 15	20:00	24.0	6.36	MID	DH59	21	639														
JUN 17	19:00	24.0	6.89	MID	DH59	14															
JUN 19	20:00	25.0	6.15	MID	DH59	11	650														
JUN 23	20:10	24.0	6.41	MID	DH59	13															
JUN 25	21:00	19.0	5.55	MID	DH59	10	674														
JUN 29	20:30	20.0	5.00	MID	DH59	9															
JUL 02	20:20	21.0	6.43	MID	DH59	10	667														
JUL 06	18:25	23.0	6.04	MID	DH59	17															
JUL 07	15:45	22.0	5.82	MID	DH59	13															
JUL 13	20:00	22.0	1.71	MID	DH59	21	676														
JUL 20	19:00	23.0	1.42	MID	DH59	21	622														
JUL 25	08:00	24.5	2.85	MID	DH59	21															
AUG 01	20:10	22.5	5.13	MID	DH59	35	551														
AUG 08	14:25	22.0	5.40	MID	DH59	20	655														
AUG 10	11:10	20.0	5.04	MID	DH59	41															
AUG 11	18:15	22.0	3.84	MID	DH59	61	659														
AUG 15	18:45	18.0	6.12	MID	DH59	68															
AUG 17	20:15	18.5	3.03	MID	DH59	98	589														
AUG 21	19:45	18.5	3.83	MID	DH59	63	652														
AUG 24	19:40	18.0	9.58	MID	DH59	38															
AUG 27	18:00	20.0	12.0	MID	DH59	31	656														
AUG 31	19:30	17.5	11.3	MID	DH59	23															
SEP 03	19:30	19.0	4.08	MID	DH59	51	621														
SEP 07	10:10	15.0	2.58	MID	DH59	48															
SEP 11	18:50	14.5	2.54	MID	DH59	49	615														
SEP 15	15:57	20.0	2.46	MID	DH59	44	634														
SEP 15	15:58	20.0	2.46	MID	DH59	37	635														
SEP 15	16:09	20.0	2.46	MID	DH59	38	630														
SEP 15	16:08	20.0	2.46	MID	DH59	43	625														
SEP 19	18:00	15.0	2.35	MID	DH59	42															
SEP 22	16:45	17.5	2.20	MID	DH59	38															
SEP 27	13:30	14.5	1.87	MID	DH59	59															
SEP 30	18:45	14.5	2.12	MID	DH59	56	652														
OCT 03	18:45	13.0	1.82	MID	DH59	108															
OCT 08	17:15	9.5	1.87	MID	DH59	97	700														
OCT 08	17:16	8.5	1.87	MID	DH59	98	718														
OCT 08	09:30	8.0	1.78	MID	DH59	97															
OCT 10	18:00	5.0	2.05	MID	DH59	74															
OCT 14	18:10	7.5	2.08	MID	DH59	40	682														
OCT 19	17:00	3.0	1.89	MID	DH59	27															
OCT 24	18:00	2.5	1.88	MID	DH59	55	672														
OCT 28	18:30	7.0	1.13	MID	DH59	80	685														
NOV 02	17:45	7.0	1.84	MID	DH59	80	680														
NOV 03	10:30	8.0	1.85	MID	DH59	47	678														

NOTE : SINGLE VERTICAL LOCATED AT MID (MID STREAM) FOR 1987

DISCHARGE SYMBOL(S): W - DAILY MEAN; ICE CONDITIONS
VERTICAL SYMBOL(S): M - A SEDIMENT MEASUREMENT VERTICAL

X - NOT AT REGULAR SINGLE SAMPLE VERTICAL

CONTINUED

SOURIS RIVER NEAR COULTER - STATION NO. 05MF018 (CONTINUED)

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1987

DATE	TIME	WATER TEMP. (°C)	INSTANT DISCHARGE (m^3/s)		SINGLE SAMPLING VERTICAL (m)	TYPE OF SAMPLER	INSTANT. CONTENT. (mg/L)	DISSOLVED SOLIDS (mg/L)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	PERCENT SAND	SILT	CLAY
NOV 07	11:00	2.0	2.89		MID	DH59	83															
NOV 10	17:30	3.0	2.54		MID	DH59	43	881														
NOV 15	14:00	4.0	1.15		MID	DH59	35	826														
NOV 22	17:10	1.0	5.61		MID	DH59	28	871														
NOV 23	15:15	2.0	5.00		MID	DH59	18	878														
NOV 24	10:45	1.0	4.81	B	MID	DH59	16	884														
NOV 27	17:00	1.0	4.07		MID	DH59	19	870														
DEC 09	15:05	0.5	0.174	B	MID	DH59	29	948														

NOTE : SINGLE VERTICAL LOCATED AT MID (MID STREAM) FOR 1987

DISCHARGE SYMBOL(S). B - ICE CONDITIONS

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF OPERATION SUMMARY (JFMAMJJASOND)	TYPE OF SAMPLING	SAMPLED CONCENTRATION MAXIMUM (mg/L)		SAMPLED CONCENTRATION MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		SUSPENDED SEDIMENT LOAD TOTAL FOR PERIOD (TONNES)	SUMMARY : MAR-OCT MEAN LOAD (TONNES)	HISTORICAL MEAN LOAD (TONNES)	STANDARD ERROR OF MEAN %
1977	--CCCCCCCCCC	MANUAL	102	APR 14	72	SEP 05	11.7	MAR 14	425	1.80	1.80	---
1978	CCCCCCCCCCCC	MANUAL	80	APR 17	10	JUL 31	173	APR 17	3 920	15.5	8.55	81.3
1979	CCCCCCCCCCCC	MANUAL	174	JAN 23	9	JUN 08	814	MAY 25 *	22 200 *	87.7	34.9	76.5
1980	CCCCCCCCCCC	MANUAL	401	MAR 20	8	JUN 04	183	APR 10	8 880	19.5	31.1	81.8
1981	CCCCCCCCCCC	MANUAL	274	FEB 18	6	DEC 08	88.7	FEB 21	2 890	7.40	26.3	50.5
1982	CCCCCCCCCCC	MANUAL	244	SEP 08	5	JUL 28	314	APR 24	8 880	33.3	27.5	46.7
1983	CCCCCCCCCCC	MANUAL	239	NOV 03	4	MAY 07	211	OCT 23	10 400	35.5	28.6	36.1
1984	CCCCCCCCCCC	MANUAL	486	APR 26 *	7	AUG 7	156	MAY 01	4 330	15.3	27.0	35.6
1985	CCCCCCCCCCC	MANUAL	218	OCT 31	11	DEC 9	159	MAR 30	8 170	24.3	28.7	31.7
1986	CCCCCCCCCCC	MANUAL	186	MAY 5	3	JUN 23 *	201	APR 23	4 830	18.5	25.8	30.4
1987	CCCCCCCCCCC	MANUAL	109	OCT 3	2	FEB 16	81.7	APR 21	4 140	15.7	24.8	27.9

MANUAL - MANUAL SAMPLING

C - COMPLETE MONTH * - EXTREME FOR PERIOD OF RECORD

MANITOBA

SOURIS RIVER NEAR LAUDER - STATION NO. 05MG025

SUSPENDED SEDIMENT FOR 1987

LOCATION: LAT 49 24 00 N LONG 100 45 37 W
DRAINAGE AREA: 51 700 km²
TYPE OF FLOW: REGULATED
TYPE OF GAUGE: RECORDING

TOTAL SUSPENDED SEDIMENT LOAD 11 800 TONNES FOR THE PERIOD JAN 14 TO NOV 03

REMARKS:

DAY	JAN DAILY DISCHARGE (m³/s)	JAN MEAN CONCENTRATION (mg/L)	JAN DAILY LOAD (t)	FEB DAILY DISCHARGE (m³/s)	FEB MEAN CONCENTRATION (mg/L)	FEB DAILY LOAD (t)	MAR DAILY DISCHARGE (m³/s)	MAR MEAN CONCENTRATION (mg/L)	MAR DAILY LOAD (t)	DAY
1							1.38 B	B	1.08	1
2							1.43 B	B	1.11	2
3							1.51 B	B	1.17	3
4							1.58 B	B	1.24	4
5							1.66 B	B	1.29	5
6							1.58 B	B	1.23	6
7							1.49 B	B	1.18	7
8							1.38 B	B	1.08	8
9							1.54 B	B	1.20	9
10							1.70 B	B	1.32	10
11							1.68 B	B S	1.31	11
12							1.71 B	B	1.33	12
13							1.73 B	B	1.35	13
14		12 S					1.71 B	B	1.33	14
15							1.70 B	B	1.32	15
16							1.68 B	B	1.31	16
17							1.70 B	B	1.32	17
18					9 S		1.71 B	B	1.33	18
19							1.73 B	B	1.35	19
20							2.23 B	16	2.89	20
21							2.88 B	18	4.03	21
22							5.62 B	24	14.1	22
23							12.1 B	36	37.6	23
24							16.0 B	73 S	113	24
25							23.1 B	78	156	25
26							25.9 B	78	175	26
27							28.4 B	78	191	27
28							28.1 B	76	185	28
29							25.5 B	73	167	29
30							26.9 B	71	166	30
31							28.6 B	70	174	31
TOTAL							280.06		1 407.43	TOTAL

DAY	APR DAILY DISCHARGE (m³/s)	APR MEAN CONCENTRATION (mg/L)	APR DAILY LOAD (t)	MAY DAILY DISCHARGE (m³/s)	MAY MEAN CONCENTRATION (mg/L)	MAY DAILY LOAD (t)	JUN DAILY DISCHARGE (m³/s)	JUN MEAN CONCENTRATION (mg/L)	JUN DAILY LOAD (t)	DAY
1	33.8 B	77	226	43.0	27 S	100	8.65	34	19.5	1
2	36.3 B	77	255	42.7	24 S	88.5	8.84	36	21.3	2
3	42.7 B	78	281	41.8	22	78.5	8.42	35	19.4	3
4	46.8 B	77	312	40.7	22 S	77.4	8.37	33	18.2	4
5	49.4	74 S	318	39.3	26 S	84.9	8.87	32	12.8	5
6	54.3	64 S	300	37.5	26 S	84.2	4.27	30 S	11.1	6
7	58.8	54 S	278	35.4	25 S	78.5	4.50	28	11.3	7
8	60.5	51 S	267	33.1	30 S	85.8	4.38	31 S	11.7	8
9	60.5	71 S	371	30.8	27 S	72.1	4.08	31	10.9	9
10	60.3	81 S	318	29.0	30 S	75.2	4.06	31	10.9	10
11	60.2	84 S	261	27.0	32 S	74.8	4.80	27 S	14.7	11
12	60.7	82 S	273	24.7	35 S	74.7	5.15	40	17.8	12
13	60.8	45 S	236	23.2	38 S	78.2	5.05	38 S	18.6	13
14	60.7	51 S	267	21.2	37 S	67.8	4.70	35	14.2	14
15	60.4	50 S	261	17.3	37 S	65.3	4.37	33 S	12.5	15
16	59.9	58 S	280	13.0	39 S	43.8	4.20	31	11.2	16
17	59.4	51 S	262	10.0	38 S	33.7	4.77	33 S	13.8	17
18	58.4	47	237	7.83	37 S	25.4	5.04	38	18.5	18
19	57.3	47 S	233	7.38	27 S	17.2	4.85	43	18.4	19
20	55.2	50 S	238	8.30	33 S	26.5	4.51	44	17.1	20
21	52.6	48	205	9.81	26 S	23.7	4.42	42 S	18.0	21
22	50.8	42 S	184	7.84	24	15.8	4.48	37	14.3	22
23	49.5	43 S	184	8.16	27	14.4	4 [illegible]	32 S	12.8	23
24	48.7	38 S	161	7.37	35 S	22.3	4.43	30	11.5	24
25	48.1	38 S	145	8.17	41 S	32.5	4.31	28 S	10.4	25
26	47.7	34 S	140	8.95	41	35.2	4.18	27	9.77	26
27	46.3	31 S	124	8.83	40 S	34.0	4.09	25	8.83	27
28	45.1	38 S	138	8.89	42 S	32.6	3.94	24 S	8.17	28
29	44.2	31 S	118	8.07	41	32.1	3.84	25	8.29	29
30	43.6	31 S	117	8.83	38	28.1	3.71	28 S	8.98	30
31				7.40	36	23.0				31
TOTAL	1 578.4		7 017	636.46		1 614.0	140.40		405.44	TOTAL

B - ICE CONDITIONS

S - SAMPLE(S) COLLECTED THIS DAY

SOURIS RIVER NEAR LAUDER - STATION NO. 05NG025

SUSPENDED SEDIMENT FOR 1987

DAY	JUL DAILY DISCHARGE (m^3/s)	JUL MEAN CONCENTRATION (mg/L)	JUL DAILY LOAD (t)	AUG DAILY DISCHARGE (m^3/s)	AUG MEAN CONCENTRATION (mg/L)	AUG DAILY LOAD (t)	SEP DAILY DISCHARGE (m^3/s)	SEP MEAN CONCENTRATION (mg/L)	SEP DAILY LOAD (t)	DAY
1	4.18	30	10.8	4.84	38	15.2	10.8	38	35.5	1
2	4.97	31	13.3	5.56	41	19.8	9.71	34	28.5	2
3	5.50	29 S	13.8	5.83	43 S	22.0	7.13	30	18.5	3
4	5.62	28	13.1	6.00	43	22.3	5.03	27 S	11.7	4
5	5.20	25	13.4	6.02	43	22.4	3.84	30	9.85	5
6	5.35	23 S	12.6	6.13	42	22.2	3.26	38 S	10.1	6
7	5.47	23	12.9	6.08	40 S	21.0	2.74	37	8.78	7
8	5.33	22 S	12.0	6.06	36	19.8	2.43	35	7.35	8
9	5.40	21	11.6	5.88	37	18.7	2.37	32 S	6.85	9
10	5.76	19 S	11.1	5.39	37	17.2	2.39	30	6.19	10
11	5.43	18	10.00	5.12	37 S	18.4	2.41	31	6.45	11
12	5.36	18	8.32	4.61	37	14.4	2.44	32 S	6.75	12
13	4.12	19	8.75	3.80	38 S	12.8	2.42	33	6.90	13
14	3.22	18	5.28	3.44	38	11.3	2.38	34	6.83	14
15	2.81	18 S	4.12	3.78	38	12.4	2.33	34	6.84	15
16	1.90	20	3.28	7.00	43	26.0	2.32	35 S	7.02	16
17	1.82	18	2.80	6.40	84 S	29.8	2.36	34	6.93	17
18	1.48	20	2.57	4.57	78	30.0	2.34	32	6.47	18
19	1.83	28	4.84	3.82	88 S	33.5	2.31	30 S	5.99	19
20	1.87	32	5.17	4.26	84	30.9	2.31	29	5.78	20
21	1.82	32	5.03	4.02	88 S	35.9	2.33	28	5.84	21
22	1.78	32 S	4.88	4.81	52	20.3	2.30	27	5.37	22
23	1.71	32	4.73	4.54	48 S	17.7	2.28	28	5.47	23
24	1.63	30	4.08	5.27	48	21.9	2.23	28	5.39	24
25	1.56	26	3.60	5.72	84 S	31.4	2.22	27	5.18	25
26	1.78	23	3.50	5.81	87	42.4	2.13	28	5.15	26
27	2.33	23 S	4.63	5.89	84 S	46.1	1.85	30 S	4.80	27
28	2.78	26	6.27	10.5	49	44.5	1.86	31	4.46	28
29	3.98	30	7.72	10.7	47 S	43.8	1.78	32	4.95	29
30	3.46	33	9.87	10.6	44	41.1	2.03	38	6.16	30
31	4.18	36	12.9	10.7	41 S	37.8				31
TOTAL	115.28		244.83	191.85		792.0	84.10		281.71	TOTAL

DAY	OCT DAILY DISCHARGE (m^3/s)	OCT MEAN CONCENTRATION (mg/L)	OCT DAILY LOAD (t)	NOV DAILY DISCHARGE (m^3/s)	NOV MEAN CONCENTRATION (mg/L)	NOV DAILY LOAD (t)	DAY
1	2.17	38 S	7.12		30		
2	2.12	36	6.96		32		1
3	2.08	36	6.32		33 S		2
4	2.22	31	5.96				3
5	2.07	28 S	5.01				4
6	1.85	28	4.48				5
7	2.08	31	5.57				6
8	2.28	32 S	6.26				7
9	2.15	31	5.76				8
10	2.03	28	4.58				9
11	2.16	23 S	4.26				10
12	2.17	22	4.12				11
13	2.10	22	3.99				12
14	2.08	22	3.92				13
15	2.07	22	3.93				14
16	2.17	22	4.12				15
17	2.16	23	4.11				16
18	2.12	22	4.03				17
19	2.09	22 S	3.97				18
20	2.08	22	3.95				19
21	2.03	22	3.88				20
22	1.85	20	3.20				21
23	1.63	20	2.82				22
24	1.47	19	2.41				23
25	1.46	19 S	2.40				24
26	1.47	18	2.41				25
27	1.36	18	2.22				26
28	1.31	18	2.18				27
29	1.37	18	2.28				28
30	1.38	18 S	2.26				29
31	1.36	18	2.27				30
TOTAL	55.81		126.84				31
							TOTAL

S - SAMPLE(S) COLLECTED THIS DAY

MANITOBA

SOURIS RIVER NEAR LAUDER - STATION NO. 05NB025

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1987

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m³/s)		SINGLE SAMPLING VERTICAL (m)		TYPE OF SAMPLER	INSTANT CONCENT (mg/L)	DISSOLVED SOLIDS (mg/L)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	PERCENT SAND	SILT	CLAY
JAN 14	11:00	0.5		B	MID		DH48	12	1500														
FEB 18	09:15	0.5		B	MID		DH48	9	1950														
MAR 11	13:05	0.5	1.69	W	15.0	I	DH48	9	1550														
MAR 24	13:55	0.5	18.0	B	19.0	I	DH48	75															
APR 06	14:15	4.5	49.4		36.0	X	DIP	74	280														
APR 06	08:45	1.0	11.3		11.0	M	DH59	59	294														
APR 06	09:55	1.0	8.24		19.0	M	DH59	61	296														
APR 06	10:10	1.0	9.82		23.5	M	DH59	61	295														
APR 06	10:15	1.0	11.3		28.0	M	DH59	76	289														
APR 06	10:28	1.0	11.0		34.0	M	DH59	57	291														
APR 06	10:40	1.0	53.6		36.0	X	DIP	64															
APR 07	17:05	5.0	58.1		36.0	X	DIP	65															
APR 07	05:40	5.0	59.8		36.0	X	DIP	55															
APR 07	15:15	10.0	80.2		36.0	X	DIP	52	257														
APR 07	19:30	8.0	80.2		MID		DH59	50	300														
APR 07	19:35	8.0	80.2		36.0	X	DIP	48	289														
APR 08	08:20	7.0	80.3		MID		DH59	46															
APR 08	17:20	8.0	80.7		MID		DH59	56															
APR 09	05:50	7.5	80.7		MID		DH59	61															
APR 09	15:50	8.0	80.7		MID		DH59	53															
APR 10	05:40	6.5	80.3		MID		DH59	52															
APR 11	15:45	7.0	80.2		MID		DH59	54															
APR 12	13:10	7.0	80.9		MID		DH59	51															
APR 12	19:30	6.0	80.7		MID		DH59	54	256														
APR 13	05:50	5.0	80.7		MID		DH59	46															
APR 13	19:10	7.0	80.9		MID		DH59	43															
APR 14	16:25	8.0	80.6		MID		DH59	55															
APR 15	11:35	9.0	80.3		MID		DH59	49															
APR 16	05:45	8.0	80.1		MID		DH59	54															
APR 16	15:50	10.5	59.7		MID		DH59	58															
APR 17	07:30	9.5	59.4		MID		DH59	52	280														
APR 19	13:05	14.0	57.2		MID		DH59	46															
APR 19	18:15	14.0	56.9		MID		DH59	48															
APR 20	16:15	13.0	54.8		MID		DH59	49	338														
APR 22	18:20	13.0	50.5		MID		DH59	42															
APR 23	05:50	12.5	48.7		MID		DH59	45															
APR 24	16:45	13.0	48.6		MID		DH59	35															
APR 25	16:40	14.0	48.0		MID		DH59	35															
APR 26	12:10	14.0	47.8		MID		DH59	34															
APR 27	19:10	14.0	46.9		MID		DH59	30	412														
APR 28	15:50	15.0	44.9		MID		DH59	38															
APR 29	15:55		44.1		MID		DH59	28															
APR 30	07:15		43.7		MID		DH59	28															
APR 30	09:50	13.0	43.7		MID		DH59	31															
MAY 01	16:10	15.0	43.0		MID		DH59	28															
MAY 02	07:20	15.0	42.9		MID		DH59	24															
MAY 04	15:35	15.0	40.4		MID		DH59	22															
MAY 05	18:05	15.0	38.1		MID		DH59	26															
MAY 06	15:45	16.0	37.1		MID		DH59	28	526														
MAY 07	18:45	16.0	34.7		MID		DH59	25															
MAY 08	18:55	16.0	32.4		MID		DH59	32															
MAY 09	08:45	17.0	31.2		MID		DH59	27															
MAY 10	18:30	18.0	28.8		MID		DH59	32															
MAY 11	18:45	18.0	28.7		MID		DH59	32															
MAY 12	19:10	18.0	24.1		MID		DH59	38															
MAY 13	15:45	19.0	23.0		MID		DH59	38	504														
MAY 14	18:20	18.0	20.8		MID		DH59	37															
MAY 15	18:15	19.5	18.1		MID		DH59	38															
MAY 16	09:05	18.0	13.8		MID		DH59	38															
MAY 17	08:20	17.0	10.3		MID		DH59	38															
MAY 18	09:45	15.0	8.02		MID		DH59	38															
MAY 18	07:30	10.5	7.18		MID		DH59	28															
MAY 20	18:15		8.79		MID		DH59	38	585														
MAY 21	18:15	11.0	8.87		MID		DH59	26															
MAY 24	14:30	15.5	7.80		MID		DH59	38															
MAY 25	17:30	15.5	8.48		MID		DH59	42	548														
MAY 27	08:55	15.0	8.88		MID		DH59	38	553														
MAY 27	16:30	13.5	8.73		MID		DH59	42															
MAY 28	16:15	13.0	8.63		MID		DH59	40															
JUN 08	12:45	21.0	4.26		MID		DH59	30	588														
JUN 08	19:15	22.5	4.11		MID		DH59	31															
JUN 11	16:25	22.0	4.73		MID		DH59	38															
JUN 13	18:30	24.0	4.96		MID		DH59	37	621														
JUN 15	20:35	23.0	4.24		MID		DH59	32															
JUN 17	20:45	25.0	4.92		MID		DH59	34															
JUN 21	18:15	25.0	4.42		MID		DH59	41	564														
JUN 23	19:20	25.0	4.61		MID		DH59	31															
JUN 25	13:15	22.0	4.31		MID		DH59	28															
JUN 28	14:15	21.0	3.99		MID		DH59	24	558														
JUN 30	20:05	22.0	3.74		MID		DH59	29															
JUL 03	13:40	22.0	5.57		MID		DH59	29															
JUL 06	15:20	23.0	6.41		MID		DH59	23	583														
JUL 08	13:15	23.0	6.32		MID		DH59	22															
JUL 10	16:45	22.0	6.76		MID		DH59	19	639														
JUL 15	19:15	24.0	2.32		MID		DH59	19	657														
JUL 22	17:15	21.0	1.77		MID		DH59	32	614														
JUL 27	18:30	25.5	2.46		MID		DH59	24	653														
AUG 03	16:40	24.0	5.84		MID		DH59	43	535														
AUG 07	19:10	23.5	6.04		MID		DH59	39															
AUG 11	19:32	22.5	4.86		MID		DH59	37	642														
AUG 13	09:40	19.0	3.68		MID		DH59	38															
AUG 17	12:20	18.0	8.35		MID		DH59	54															
AUG 18	16:20	18.5	3.68		MID		DH59	103	185														
AUG 21	09:15	17.0	4.83		MID		DH59	68	C 302														
AUG 23	13:10	17.5	4.53		MID		DH59	44															
AUG 25	15:15	18.5	5.86		MID		DH59	54															
AUG 27	19:10	18.0	10.1		MID		DH59	52															
AUG 29	13:50	17.5	10.8		MID		DH59	47	534														
AUG 31	19:15	17.0	10.7		MID		DH59	40															

NOTE : SINGLE VERTICAL LOCATED AT MID (MID STREAM) FOR 1987

DISCHARGE SYMBOL(S): B - ICE CONDITIONS W - DAILY MEAN; ICE CONDITIONS
CONCENTRATION SYMBOL(S): C - COARSE MATERIAL PRESENT

VERTICAL SYMBOL(S): I - A SEDIMENT MEASUREMENT VERTICAL NOT AT THE REGULAR MEASUREMENT CROSS-SECTION
M - A SEDIMENT MEASUREMENT VERTICAL X - NOT AT REGULAR SINGLE SAMPLE VERTICAL

CONTINUED

SOURIS RIVER NEAR LAUDER - STATION NO. 05NG035 (CONTINUED)

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1987

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m^3/s)	SINGLE SAMPLING VERTICAL (m)	TYPE OF SAMPLER	INSTANT. CONCENT. (mg/L)	DISSOLVED SOLIDS (mg/L)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	PERCENT SAND	PERCENT SILT	PERCENT CLAY
SEP 04	10:20	16.0	4.56	MID	DH59	27															
SEP 08	13:10	16.0	3.22	MID	DH59	36	847														
SEP 09	10:30	15.0	2.38	MID	DH59	31															
SEP 12	10:30	15.0	2.45	MID	DH59	32	856														
SEP 16	11:00	17.0	2.31	MID	DH59	35	850														
SEP 18	10:35	15.5	2.31	MID	DH59	28	840														
SEP 27	09:00	14.0	1.89	MID	DH59	30	857														
OCT 01	17:30	11.0	2.19	MID	DH59	38															
OCT 05	17:45	10.0	2.01	MID	DH59	27	853														
OCT 08	12:30	9.0	2.29	MID	DH59	32															
OCT 11	12:15	5.5	2.15	MID	DH59	22	855														
OCT 19	16:00	4.0	2.08	MID	DH59	22	850														
OCT 26	17:00	4.0	1.80	MID	DH59	19	859														
OCT 30	15:30	4.0	1.39	MID	DH59	19	855														
NOV 03	14:35	7.0	1.67	MID	DH59	23															

NOTE : SINGLE VERTICAL LOCATED AT MID (MID STREAM) FOR 1987

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF OPERATION SUMMARY (JFMAMJJASOND)	TYPE OF SAMPLING	SAMPLED CONCENTRATION MAXIMUM (mg/L)		SAMPLED CONCENTRATION MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		SUSPENDED SEDIMENT LOAD TOTAL FOR PERIOD (TONNES)	SUMMARY : MAR-OCT MEAN LOAD (TONNES)	HISTORICAL MEAN LOAD (TONNES)	STANDARD ERROR OF MEAN %
1983	--CCCCCCCCP-	MANUAL	80 APR 28		11 AUG 01		526 APR 28 *		15 500 *	83.2	83.2	---
1984	-PCCCCCCCC--	MANUAL	283 MAY 7 *		12 FEB 28		184 JUN 08		7 130	28.1	46.2	38.8
1985	--CCCCCCCC--	MANUAL	232 APR 14		8 JUN 28 *		280 MAR 28		5 370	21.9	38.1	33.4
1986	--CCCCCCCCPP	MANUAL	149 APR 9		12 JUL 14		117 MAY 08		6 580	26.8	36.3	28.7
1987	PPCCCCCCCCP-	MANUAL	103 AUG 19		8 FEB 18		371 APR 09		11 900	48.4	37.8	20.5

MANUAL - MANUAL SAMPLING

C - COMPLETE MONTH P - PARTIAL MONTH * - EXTREME FOR PERIOD OF RECORD

SOURIS RIVER NEAR MINTO - STATION NO. 05NG025

LOCATION: LAT N LONG W
DRAINAGE AREA: km²
TYPE OF FLOW: REGULATED
TYPE OF GAUGE: MANUAL

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1987

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m³/s)	SINGLE SAMPLING VERTICAL [m]	TYPE OF SAMPLER	INSTANT. CONCENT. (mg/L)	DISSOLVED SOLIDS (mg/L)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	PERCENT SAND	SILT	CLAY
JAN 15	09:00	0.5		MID	DH48	8	1300														
FEB 18	16:10	0.5		MID	DH48	8	1580														
MAR 09	11:40	0.5		MID	DH48	25	1510														
MAR 22	17:00	0.5		MID	DH59	14	803														
MAR 23	17:40	0.5		MID	DH59	17															
MAR 24	17:50	0.5		MID	DH59	24	682														
APR 05	18:05	4.0		MID	DH59	115															
APR 06	07:15	2.0		MID	DH59	108															
APR 07	07:05	1.0		MID	DH59	170	284														
APR 08	18:25	8.0		MID	DH59	88															
APR 09	18:55	9.0		MID	DH59	89															
APR 10	18:00	7.5		MID	DH59	84															
APR 12	18:15	7.5		MID	DH59	75	303														
APR 13	10:10	6.0		MID	DH59	71															
APR 13	17:35	8.0		MID	DH59	70															
APR 14	18:55	9.0		MID	DH59	74															
APR 15	10:55	8.5		MID	DH59	74	289														
APR 15	20:05	10.0		MID	DH59	71															
APR 16	08:55	9.0		MID	DH59	71															
APR 16	20:05	11.0		MID	DH59	78															
APR 17	12:55	11.0		MID	DH59	76															
APR 17	20:30	12.0		MID	DH59	77															
APR 18	10:55	11.5		MID	DH59	75															
APR 19	12:50	13.0		MID	DH59	72	297														
APR 19	20:35	13.5		MID	DH59	70															
APR 20	10:20	12.0		MID	DH59	70															
APR 20	20:45	13.0		MID	DH59	67															
APR 21	20:30	13.0		MID	DH59	61															
APR 22	20:25	13.5		MID	DH59	63															
APR 23	18:50	13.0		MID	DH59	54															
APR 24	17:15	12.5		MID	DH59	49															
APR 25	18:15	13.5		MID	DH59	44															
APR 26	20:45	13.5		MID	DH59	51	385														
APR 27	18:05	14.5		MID	DH59	44															
APR 28	14:05	15.0		MID	DH59	45															
APR 29	10:20	13.0		MID	DH59	45															
APR 30	08:00	12.5		MID	DH59	43															
APR 30	12:50	13.5		MID	DH59	46															
MAY 01	08:50	12.0		MID	DH59	43															
MAY 02	08:55	12.5		MID	DH59	43	432														
MAY 03	08:50	12.5		MID	DH59	43															
MAY 04	10:50	13.5		MID	DH59	40															
MAY 05	08:10	14.0		MID	DH59	41															
MAY 06	10:20	14.5		MID	DH59	40															
MAY 07	09:05	14.5		MID	DH59	41															
MAY 08	14:45	15.0		MID	DH59	38	482														
MAY 10	15:05	15.5		MID	DH59	33															
MAY 11	21:25	15.5		MID	DH59	28															
MAY 13	05:05	17.0		MID	DH59	39															
MAY 14	21:25	15.0		MID	DH59	30	514														
MAY 16	10:45	17.0		MID	DH59	35															
MAY 17	21:30	15.5		MID	DH59	27															
MAY 19	09:15	14.0		MID	DH59	28															
MAY 20	20:50	13.0		MID	DH59	21															
MAY 22	12:05	11.5		MID	DH59	24	576														
MAY 24	09:50	14.5		MID	DH59	23															
MAY 25	10:25	16.5		MID	DH59	21															
MAY 26	14:20	16.0		MID	DH59	20															
MAY 28	08:45	17.0		MID	DH59	33	578														
MAY 31	11:55	21.5		MID	DH59	21															
JUN 02	10:40	17.5		MID	DH59	17															
JUN 04	21:30	19.5		MID	DH59	14	578														
JUN 07	15:50	24.5		MID	DH59	8															
JUN 09	19:30	23.0		MID	DH59	12															
JUN 12	14:50	24.5		MID	DH59	13	610														
JUN 14	17:10	27.0		MID	DH59	17															
JUN 18	21:30	26.0		MID	DH59	16															
JUN 19	17:55	28.0		MID	DH59	15	619														
JUN 21	21:20	27.0		MID	DH59	17															
JUN 23	17:40	26.5		MID	DH59	16															
JUN 26	17:55	23.0		MID	DH59	17	638														
JUN 28	21:30	19.5		MID	DH59	22															
JUL 01	09:45	20.5		MID	DH59	16	614														
JUL 03	09:20	20.5		MID	DH59	15															
JUL 05	21:35	26.0		MID	DH59	12															
JUL 06	09:55	23.5		MID	DH59	16															
JUL 09	12:05	22.5		MID	DH59	20	648														
JUL 12	11:05	19.0		MID	DH59	16															
JUL 16	10:20	22.5		MID	DH59	14	678														
JUL 20	09:55	20.0		MID	DH59	13															
JUL 24	12:30	22.5		MID	DH59	8															
JUL 27	21:30	26.0		MID	DH59	13															
JUL 31	12:20	22.5		MID	DH59	14	643														
AUG 04	11:00	20.0		MID	DH59	22															
AUG 07	09:20	20.5		MID	DH59	23	651														
AUG 11	09:45	21.0		MID	DH59	29															
AUG 11	20:05	21.5		MID	DH59	23															
AUG 15	16:30	16.5		MID	DH59	40	527														
AUG 17	20:50	16.5		MID	DH59	29															
AUG 20	14:10	20.0		MID	DH59	27															
AUG 22	20:50	16.5		MID	DH59	27	604														
AUG 25	11:40	17.5		MID	DH59	22															
AUG 29	09:45	16.0		MID	DH59	38	343														
SEP 01	16:30	16.0		MID	DH59	34															

NOTE : SINGLE VERTICAL LOCATED AT MID (MID STREAM) FOR 1987

CONTINUED

SOURIS RIVER NEAR MINTO - STATION NO. 05NG026 (CONTINUED)

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1987

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m^3/s)	SINGLE SAMPLING VERTICAL (m)	TYPE OF SAMPLER	INSTANT. CONCENT. (mg/L)	DISSOLVED SOLIDS (mg/L)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	PERCENT SAND	PERCENT SILT	PERCENT CLAY
SEP 05	11:05	17.0		MID	DH59	28	688														
SEP 08	10:35	14.5		MID	DH59	20															
SEP 12	12:05	14.5		MID	DH59	14	642														
SEP 14	09:30	16.0		MID	DH59	14															
SEP 16	18:00	20.5		MID	DH59	8															
SEP 18	17:10	15.0		MID	DH59	16	626														
SEP 23	08:55	14.0		MID	DH59	18															
SEP 26	11:45	12.5		MID	DH59	21	633														
SEP 29	08:10	11.0		MID	DH59	17															
OCT 03	11:30	9.5		MID	DH59	16	644														
OCT 06	14:20	8.0		MID	DH59	19															
OCT 07	10:10	6.0		MID	DH59	18															
OCT 10	17:05	5.0		MID	DH59	14	645														
OCT 14	10:55	5.5		MID	DH59	11															
OCT 17	16:30	6.0		MID	DH59	8	631														
OCT 20	18:00	3.0		MID	DH59	7															
OCT 24	13:45	2.5		MID	DH59	9	636														
OCT 28	10:50	3.5		MID	DH59	6															
OCT 31	14:50	5.5		MID	DH59	5	642														
NOV 02	10:35	6.0		MID	DH59	9	648														

NOTE : SINGLE VERTICAL LOCATED AT MID (MID STREAM) FOR 1987

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF OPERATION SUMMARY (JFMAMJJASOND)	TYPE OF SAMPLING	SAMPLED CONCENTRATION MAXIMUM (mg/L)				SAMPLED CONCENTRATION MINIMUM (mg/L)				SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		SUSPENDED SEDIMENT LOAD TOTAL FOR PERIOD (TONNES)	SUMMARY : MAR-OCT MEAN LOAD (TONNES)	SUMMARY : MAR-OCT HISTORICAL MEAN LOAD (TONNES)	SUMMARY : MAR-OCT STANDARD ERROR OF MEAN %
1983	--EEEEEEEE--	MANUAL	260	APR	08		8	JUL	07		---	---	---	---	---	---
1984	--EEEEEEEE--	MANUAL	51	JUN	10		5	MAR	1	*	---	---	---	---	---	---
1985	--EEEEEEEEP-	MANUAL	175	APR	2		8	JUL	10		---	---	---	---	---	---
1986	--EEEEEEEE-P	MANUAL	303	MAY	6	*	6	DEC	8		---	---	---	---	---	---
1987	PPEEEEEEEEP-	MANUAL	170	APR	7		6	FEB	18		---	---	---	---	---	---

MANUAL - MANUAL SAMPLING

E - COMPLETE MONTH P - PARTIAL MONTH * - EXTREME FOR PERIOD OF RECORD

MANITOBA

VALLEY RIVER NEAR DAUPHIN - STATION NO. 05LJ010

SUSPENDED SEDIMENT FOR 1987

LOCATION: LAT 51 15 45 N LONG 100 00 39 W
DRAINAGE AREA: 2 880 km²
TYPE OF FLOW: REGULATED
TYPE OF GAUGE: RECORDING

TOTAL SUSPENDED SEDIMENT LOAD 17 000 TONNES FOR THE PERIOD MAR 01 TO NOV 03

REMARKS:

DAY	MAR DAILY DISCHARGE (m³/s)	MAR MEAN CONCENTRATION (mg/L)	MAR DAILY LOAD (t)	APR DAILY DISCHARGE (m³/s)	APR MEAN CONCENTRATION (mg/L)	APR DAILY LOAD (t)	MAY DAILY DISCHARGE (m³/s)	MAY MEAN CONCENTRATION (mg/L)	MAY DAILY LOAD (t)	DAY
1	0.672 B	7	0.53	1.88 B	18	2.46	8.69	11 S	8.36	1
2	0.672 B	7	0.53	1.77 B	18 S	2.75	8.16	11 S	8.85	2
3	0.672 B	7	0.53	3.81 B	26 S	8.78	8.79	9 S	4.80	3
4	0.672 B	7	0.53	10.6 B	53 S	48.5	5.45	11	5.18	4
5	0.672 B	7	0.53	35.0 B	138 S	417	5.20	11 S	4.94	5
6	0.951 B	8	0.66	80.4 B	286 S	1 850	5.07	11	4.82	6
7	1.00 B	8	0.78	173	484 S	7 380	4.61	12	4.99	7
8	0.976 B	8	0.68	131	330 S	3 740	4.53	11 S	4.31	8
9	0.897 B	8	0.62	78.3	213 S	1 440	4.21	11	4.00	9
10	0.857 B	7	0.62	51.0	165 S	727	3.92	8	3.05	10
11	0.841 B	7	0.51	35.2	112 S	341	3.82	10	3.30	11
12	0.836 B	7	0.61	25.3	90 S	196	3.46	10	2.01	12
13	0.828 B	7	0.60	20.6	85 S	151	2.52	6	1.74	13
14	0.845 B	8	0.58	17.6	54 S	82.1	2.49	7 S	1.51	14
15	0.851 B	8	0.59	15.5	46 S	61.8	2.49	9	1.94	15
16	0.844 B	8	0.58	14.3	53 S	65.5	2.38	9 S	1.85	16
17	0.822 B	8	0.64	12.9	47 S	52.4	2.28	7	1.38	17
18	0.662 B	10	0.74	11.8	40 S	40.8	2.13	5 S	0.82	18
19	0.776 B	8	0.60	11.2	29	28.1	2.28	4	0.78	19
20	0.795 B	9	0.62	10.9	31 S	29.2	2.04	5	0.88	20
21	1.02 B	13	1.15	10.4	26 S	23.4	1.87	6 S	0.87	21
22	1.22 B	16	1.80	9.86	28 S	24.9	1.56	5	0.67	22
23	1.32 B	26	2.85	8.45	25 S	20.4	1.09	5	0.47	23
24	1.56 B	34	4.58	8.88	18	14.0	1.10	8 S	0.76	24
25	1.85 B	32 S	4.28	8.48	13 S	9.52	0.959	8	0.66	25
26	1.71 B	21 S	3.10	7.86	12 S	8.17	0.765	6	0.39	26
27	1.70 B	17	2.50	7.53	12 S	7.61	0.712	4	0.25	27
28	1.62 B	17	2.38	7.29	15	9.45	0.886	4	0.24	28
29	1.63 B	17	2.38	8.82	14 S	8.37	0.843	3 S	0.17	29
30	1.61 B	16	2.23	8.74	9 S	6.24	0.593	4	0.20	30
31	1.57 B	16	2.44				0.452	5 S	0.20	31
TOTAL	33.654		41.67	825.28		15 795.45	87.952		70.19	TOTAL

DAY	JUN DAILY DISCHARGE (m³/s)	JUN MEAN CONCENTRATION (mg/L)	JUN DAILY LOAD (t)	JUL DAILY DISCHARGE (m³/s)	JUL MEAN CONCENTRATION (mg/L)	JUL DAILY LOAD (t)	AUG DAILY DISCHARGE (m³/s)	AUG MEAN CONCENTRATION (mg/L)	AUG DAILY LOAD (t)	DAY
1	0.454	6	0.24	0.638	8 S	0.43	0.492	24	1.02	1
2	0.558	6	0.29	0.787	7	0.48	0.447	23	0.88	2
3	0.526	6	0.27	0.729	7	0.44	0.370	22 S	0.70	3
4	0.698	4 S	0.21	0.785	7 S	0.46	0.328	21	0.60	4
5	0.392	3	0.10	0.697	7	0.42	0.331	19	0.54	5
6	0.306	5	0.13	0.568	8 S	0.35	0.381	14	0.46	6
7	0.268	7 S	0.16	0.661	8	0.34	0.416	8	0.28	7
8	0.230	7	0.14	0.540	8	0.28	0.376	5	0.16	8
9	0.184	8	0.08	0.589	5 S	0.25	0.312	4 S	0.11	9
10	0.147	3 S	0.04	0.611	8	0.32	0.293	4	0.10	10
11	1.38	3	0.38	0.686	9	0.54	0.336	5	0.18	11
12	1.54	4	0.53	0.703	8 S	0.36	0.251	4	0.09	12
13	1.51	4	0.52	0.677	5	0.29	0.207	4	0.07	13
14	1.44	4 S	0.50	0.631	8	0.33	0.188	4	0.06	14
15	1.32	4 S	0.48	0.569	7	0.34	0.221	4 S	0.08	15
16	1.31	6 S	0.63	0.500	7	0.30	0.238	4	0.08	16
17	1.28	6 S	0.67	0.467	8 S	0.32	0.205	4	0.07	17
18	1.11	5	0.48	0.471	8	0.37	0.170	4	0.06	18
19	0.948	5 S	0.41	0.634	13	0.70	0.147	4 S	0.05	19
20	0.863	7 S	0.52	0.738	9	0.57	0.131	4	0.06	20
21	0.807	5 S	0.39	0.734	4 S	0.25	0.126	4	0.04	21
22	0.656	7 S	0.53	0.555	3	0.17	0.113	4	0.04	22
23	0.598	8 S	0.57	0.705	18 S	1.10	0.105	4	0.04	23
24	0.569	7 S	0.50	1.04	35	3.26	0.088	4 S	0.03	24
25	0.851	8	0.49	0.910	35	1.97	0.089	4	0.03	25
26	0.854	8	0.44	0.740	23	1.47	0.072	3	0.02	26
27	0.813	8 S	0.42	0.700	23	1.38	0.076	4	0.03	27
28	0.805	7	0.49	0.795	28	1.78	0.068	4	0.02	28
29	0.799	8 S	0.52	0.695	35	1.80	0.064	3	0.02	29
30	0.787	8	0.54	0.597	25	1.29	0.054	3	0.01	30
31				0.529	24	1.10	0.050	4	0.02	31
TOTAL	25.126		11.93	21.153		22.17	6.785		5.98	TOTAL

B - ICE CONDITIONS

S - SAMPLE(S) COLLECTED THIS DAY

VALLEY RIVER NEAR DAUPHIN - STATION NO. 05LJ010

SUSPENDED SEDIMENT FOR 1987

DAY	SEP DAILY DISCHARGE (m^3/s)	SEP MEAN CONCENTRATION (mg/L)	SEP DAILY LOAD (t)	OCT DAILY DISCHARGE (m^3/s)	OCT MEAN CONCENTRATION (mg/L)	OCT DAILY LOAD (t)	NOV DAILY DISCHARGE (m^3/s)	NOV MEAN CONCENTRATION (mg/L)	NOV DAILY LOAD (t)	DAY
1	0.044	3	0.01	0	0	0	0.353	4	0.12	1
2	0.053	3	0.01	0	0	0	0.321	3	0.08	2
3	0.043	3 S	0.01	0	0	0	0.304	2	0.05	3
4	0.034	3	0.01	0.008	1	0				4
5	0.032	4	0.01	0.018	4 S	0.01				5
6	0.018	4 S	0.01	0.023	4	0.01				6
7	0.011	2	0	0.053	4	0.02				7
8	0.001	0	0	0.184	5 S	0.08				8
9	0	0	0	0.309	7	0.18				9
10	0	0	0	0.239	4 S	0.08				10
11	0.001	0	0	0.233	3	0.06				11
12	0	0	0	0.436	6	0.22				12
13	0	0 S	0	0.862	4	0.23				13
14	0	0	0	0.736	2 S	0.13				14
15	0	0	0	0.700	2	0.12				15
16	0	0	0	0.870	3	0.12				16
17	0.021	5	0.01	0.660	2	0.12				17
18	0.023	6 S	0.01	0.690	2 S	0.12				18
19	0.010	4	0	0.769	2	0.13				19
20	0.005	3	0	0.739	1	0.06				20
21	0.003	2	0	0.842	2 S	0.11				21
22	0.006	1	0	0.886	2	0.12				22
23	0.008	0	0	0.877	2	0.12				23
24	0.005	0 S	0	0.842	2	0.11				24
25	0.003	1	0	0.802	2 S	0.10				25
26	0.002	1	0	0.808	3	0.16				26
27	0	0	0	0.527	3	0.14				27
28	0	0	0	0.477	3 S	0.12				28
29	0.003	0	0	0.426	3	0.11				29
30	0.002	1 S	0	0.389	3	0.10				30
31				0.358	5 S	0.15				31
TOTAL	0.327		0.08	13.088		3.05	0		0.25	TOTAL

MANITOBA

VALLEY RIVER NEAR DAUPHIN - STATION NO. 05LJ010

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1987

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m³/s)		SINGLE SAMPLING VERTICAL (m)		TYPE OF SAMPLER	INSTANT. CONCENT. (mg/L)		DISSOLVED SOLIDS (mg/L)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	PERCENT SAND	SILT	CLAY
MAR 25	15:30	1.0	1.82	B	28.4		DH59	32		515														
MAR 26	12:00	1.0	1.84	B	WELB	X	DIP	20																
APR 02	16:00	2.0	1.77	B	WELB	X	DIP	17		506														
APR 03	10:00	3.0	3.37	B	WELB	X	DIP	20																
APR 04	15:00	4.0	9.03	B	WELB	X	DIP	56																
APR 05	09:00	4.0	35.0	B	WELB	X	DIP	78																
APR 05	13:30	4.0	36.6	B	28.4		DH59	150																
APR 05	19:00	3.0	36.2	B	28.4		DH59	213																
APR 06	09:00	1.0	50.7	B	28.4		DH59	282																
APR 06	12:50	4.0	86.6	B	28.4		DH59	412		189	19	26	46	57	77	86	94	98	100			14	60	26
APR 06	16:00	4.0	102	B	28.4		DH59	280																
APR 06	18:20	4.0	102	B	28.4		DH59	237																
APR 07	09:00	3.5	171		28.4		DH59	583		180	25	38	58	81	90	94	97	100				5	55	39
APR 07	14:15	4.0	184		28.4		DH59	625		207	27	44	67	79	90	93	96	99	100			7	49	44
APR 07	18:10	5.5	180		28.4		DH59	602		187	41	57	74	85	89	94	96	99	100			6	37	57
APR 08	08:20	3.0	141		28.4		DH59	338																
APR 08	13:50	5.5	122		28.4		DH59	315																
APR 08	18:30	7.0	108		28.4		DH59	283																
APR 09	10:00	7.0	80.2		28.4		DH59	218																
APR 09	18:00	7.0	71.0		28.4		DH59	180																
APR 10	09:15	3.0	82.7		28.4		DH59	173		273														
APR 10	10:00	3.0	10.7		11.0	M	D49	182		288														
APR 10	10:11	3.0	9.82		14.0	M	D49	151		288														
APR 10	10:15	3.0	51.8		28.4		DH59	180		290														
APR 10	10:23	3.0	8.22		18.0	M	D49	148		283														
APR 10	10:34	3.0	13.0		18.0	M	D49	152		279														
APR 10	10:45	3.0	12.2		24.0	M	D49	150		286														
APR 10	18:00	2.0	45.8		28.4		DH59	154																
APR 11	10:00	2.0	35.8		28.4		DH59	111																
APR 11	14:00	4.0	34.0		28.4		DH59	89																
APR 12	09:00	3.0	25.9		28.4		DH59	84																
APR 12	20:30	5.0	22.2		28.4		DH59	99																
APR 13	09:00	3.5	21.3		28.4		DH59	104	C															
APR 13	20:15	7.0	18.3		28.4		DH59	83																
APR 14	08:00	6.0	16.1		28.4		DH59	82	C															
APR 14	20:00	6.0	16.8		28.4		DH59	46																
APR 15	14:55	8.0	15.3		28.4		DH59	47		394														
APR 16	09:00	10.0	14.2		28.4		DH59	86																
APR 16	18:00	12.0	14.2		28.4		DH59	90																
APR 17	08:00	11.0	13.0		28.4		DH59	48																
APR 18	21:00	13.0	11.4		28.4		DH59	36																
APR 20	09:00	8.0	11.0		28.4		DH59	28																
APR 20	21:00	10.0	10.8		28.4		DH59	36																
APR 21	09:00	9.0	10.5		28.4		DH59	25																
APR 22	09:00	10.0	10.0		28.4		DH59	28		432														
APR 23	09:00	9.0	9.50		28.4		DH59	27																
APR 25	08:00	10.0	8.81		28.4		DH59	13																
APR 26	09:00	11.0	7.92		28.4		DH59	14																
APR 27	06:30	11.0	7.80		28.4		DH59	12																
APR 29	08:00	11.0	7.08		28.4		DH59	15																
APR 30	08:00	12.0	6.73		28.4		DH59	11		410														
MAY 01	08:00	12.0	6.78		28.4		DH59	11																
MAY 02	08:00	12.0	6.19		28.4		DH59	9																
MAY 03	18:00	14.0	5.85		28.4		DH59	10																
MAY 05	10:30	15.0	5.15		28.4		DH59	12		399														
MAY 06	11:00	15.0	4.54		28.4		DH59	11																
MAY 14	12:30	15.0	2.49		28.4		DH59	7		385														
MAY 16	19:00	16.0	2.34		28.4		DH59	8																
MAY 18	09:00	14.0	2.15		28.4		DH59	5																
MAY 21	12:00	11.0	1.81		28.4		DH59	8		388														
MAY 24	17:00	16.0	1.38		28.4		DH59	10																
MAY 28	08:00	18.0	0.870		28.4		DH59	3		371														
MAY 31	13:45	25.0	0.438		28.4		DH59	5																
JUN 04	18:25	20.0	0.598		28.4		DH59	3																
JUN 07	15:00	20.0	0.284		28.4		DH59	7		390														
JUN 10	07:40	18.0	0.138		28.4		DH59	3																
JUN 14	10:00	24.0	1.48		28.4		DH59	4		488														
JUN 15	19:00	26.0	1.25		28.4		DH59	4																
JUN 16	19:00	26.0	1.15		28.4		DH59	7																
JUN 17	07:30	24.0	1.35		28.4		DH59	8																
JUN 18	14:45	28.0	0.844		28.4		DH59	5																
JUN 20	08:45	24.0	0.828		28.4		DH59	7																
JUN 21	10:40	25.0	0.811		28.4		DH59	5																
JUN 22	12:00	27.0	0.851		28.4		DH59	7																
JUN 23	18:30	28.0	1.00		28.4		DH59	6																
JUN 24	11:00	22.0	1.00		28.4		DH59	8		403														
JUN 27	12:00	22.0	0.818		28.4		DH59	6																
JUN 28	17:00	22.0	0.801		28.4		DH59	8																
JUL 01	15:00	23.0	0.795		28.4		DH59	5		326														
JUL 04	08:30	22.0	0.768		28.4		DH59	7																
JUL 08	09:00	20.0	0.648		28.4		DH59	8																
JUL 09	17:00	24.0	0.578		28.4		DH59	5		303														
JUL 12	12:00	22.0	0.607		28.4		DH59	6																
JUL 17	19:45	23.0	0.459		28.4		DH59	6		290														
JUL 21	18:00	21.0	0.724		28.4		DH59	3																
JUL 23	10:30	20.0	0.822		28.4		DH59	17		284														
AUG 03	20:00	20.0	0.355		28.4		DH59	22		304														
AUG 08	10:45	22.0	0.308		28.4		DH59	4		300														
AUG 15	11:00	18.0	0.226		28.4		DH59	4		279														
AUG 18	07:30	16.0	0.147		28.4		DH59	4																
AUG 24	08:30	15.0	0.090		28.4		DH59	4		284														
SEP 03	08:30	17.0	0.038		28.4		DH59	3		312														
SEP 02	08:31	17.0	0.038		28.4		DH59	3		307														
SEP 06	17:00	17.0	0.018		28.4		DH59	4																
SEP 13	18:00	18.0	0.		28.4		DH59	3		310														
SEP 18	09:00	17.0	0.021		28.4		DH59	8																
SEP 24	11:00	17.0	0.		28.4		DH59	7		323														
SEP 30	15:00	10.0	0.003		WELB	X	DIP	4		331														
OCT 06	08:00	8.0	0.010		WELB	X	DIP	4																
OCT 08	15:00	4.0	0.203		28.4		DH59	8		315														
OCT 10	17:00	8.0	0.213		28.4		DH59	3		398														
OCT 14	15:00	7.0	0.747		28.4		DH59	2																

NOTE : SINGLE VERTICAL LOCATED AT 28.4 METRES FOR 1987

DISCHARGE SYMBOL(S). B - ICE CONDITIONS
CONCENTRATION SYMBOL(S). C - COARSE MATERIAL PRESENT

VERTICAL SYMBOL(S): M - A SEDIMENT MEASUREMENT VERTICAL X - NOT AT REGULAR SINGLE SAMPLE VERTICAL

CONTINUED

VALLEY RIVER NEAR DAUPHIN - STATION NO. 05LJ010 (CONTINUED)

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1987

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m^3/s)	SINGLE SAMPLING VERTICAL (m)	TYPE OF SAMPLER	INSTANT. CONCENT. (mg/L)	DISSOLVED SOLIDS (mg/L)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	PERCENT SAND	SILT	CLAY
OCT 18	15:00	7.0	0.689	28.4	DH59	2	411														
OCT 31	16:00	3.0	0.637	28.4	DH59	2															
OCT 25	12:00	4.0	0.598	28.4	DH59	2	449														
OCT 28	10:00	4.0	0.481	28.4	DH59	3															
OCT 31	10:20	4.0	0.349	28.4	DH59	5	432														
NOV 04	15:40	3.0		28.4	DH59	2	436														

NOTE : SINGLE VERTICAL LOCATED AT 28.4 METRES FOR 1987

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF OPERATION SUMMARY (JFMAMJJASOND)	TYPE OF SAMPLING	SAMPLED CONCENTRATION MAXIMUM (mg/L)		MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		TOTAL FOR PERIOD (TONNES)	SUMMARY : MAR-OCT MEAN LOAD (TONNES)	HISTORICAL MEAN LOAD (TONNES)	STANDARD ERROR OF MEAN %
1980	--CCCCCCCC--	MANUAL	204	APR 10	3	OCT 04	893	APR 10	4 200	17.2	17.2	---
1981	--CCCCCCCC--	MANUAL	357	JUL 04	3	OCT 28	1 210	JUL 04	2 150	8.78	13.0	32.5
1982	--CCCCCCCC--	MANUAL	72	APR 18	1	OCT 24 *	80.9	APR 18	483	1.87	8.31	47.3
1983	--CCCCCCCC--	MANUAL	780	APR 25	5	SEP 30	19 800	APR 25 *	45 200 *	184	83.0	82.6
1984	--CCCCCCCC--	MANUAL	208	JUN 28	3	OCT 30	529	JUN 28	4 170	17.0	45.8	78.7
1985	--CCCCCCCC--	MANUAL	1 080	APR 2 *	3	OCT 4	1 880	APR 12	8 980	35.7	44.3	84.0
1986	--CCCCCCCCP-	MANUAL	434	MAY 6	2	OCT 15	2 380	APR 01	17 300	70.7	48.0	80.5
1987	--CCCCCCCCP-	MANUAL	825	APR 7	2	SEP 13	7 380	APR 07	17 000	88.2	80.7	41.8

MANUAL - MANUAL SAMPLING

C - COMPLETE MONTH P - PARTIAL MONTH * - EXTREME FOR PERIOD OF RECORD

STATION NUMBER INDEX

STA. NO.	NAME	PAGE
05LJ010	VALLEY RIVER NEAR DAUPHIN	52
05LJ047	EDWARDS CREEK DRAIN BELOW JACKFISH CREEK	14
05MH005	ASSINIBOINE RIVER NEAR HOLLAND	8
05MJ001	ASSINIBOINE RIVER AT HEADINGLEY	4
05NF002	ANTLER RIVER NEAR MELITA	1
05NF018	SOURIS RIVER NEAR COULTER	52
05NG001	SOURIS RIVER AT WAWANESA	48
05NG025	SOURIS RIVER NEAR LAUDER	56
05NG026	SOURIS RIVER NEAR MINTO	60
05DB007	PEMBINA RIVER NEAR WINDYGATES	20
05DC001	RED RIVER AT EMERSON	25
05DD001	ROSEAU RIVER NEAR DOMINION CITY	44
05DD004	ROSEAU RIVER AT GARDENTON	40
05DJ010	RED RIVER NEAR LOCKPORT	32
05TG001	BURNTWOOD RIVER NEAR THOMPSON	13
05TG003	ODEI RIVER NEAR THOMPSON	10
05TG004	BURNTWOOD RIVER BELOW FIRST RAPIDS	12

ALPHABETICAL INDEX

NAME	STA. NO.	PAGE
ANTLER RIVER NEAR MELITA	05NF002	1
ASSINIBOINE RIVER AT HEADINGLEY	05MJ001	4
ASSINIBOINE RIVER NEAR HOLLAND	05MH005	8
BURNTWOOD RIVER BELOW FIRST RAPIDS	05TG004	12
BURNTWOOD RIVER NEAR THOMPSON	05TG001	13
EDWARDS CREEK DRAIN BELOW JACKFISH CREEK	05LJ047	14
ODEI RIVER NEAR THOMPSON	05TG003	18
PEMBINA RIVER NEAR WINDYGATES	05OB007	20
RED RIVER AT EMERSON	05OC001	25
RED RIVER NEAR LOCKPORT	05OJ010	33
ROSEAU RIVER AT GARDENTON	05OD004	40
ROSEAU RIVER NEAR DOMINION CITY	05OD001	44
SOURIS RIVER AT WAWANESA	05NG001	48
SOURIS RIVER NEAR COULTER	05NF018	52
SOURIS RIVER NEAR LAUDER	05NG025	56
SOURIS RIVER NEAR MINTO	05NG028	60
VALLEY RIVER NEAR DAUPHIN	05LJ010	82